THE IMPACTS OF RESIDENTIAL GROWTH CONTROLS ON SAN DIEGO'S HOUSING MARKET AND EMPLOYMENT BASE

FINAL REPORT

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and

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EXECUTIVE SUMMARY

A. Issues

This report examines the potential economic impacts of residential growth controls in the City of San Diego. The study focuses on impacts to the San Diego region's housing market and employment base and to some socio-economic conditions.

B. Methodology

The research involved the development of several economic models to describe San Diego's housing market and economic base, and the interactions between housing construction and employment growth. The research looked at the factors influencing home sales, the underlying causes of employment growth, the determinants of industrial and occupational mixes, and the likely locational distribution of job growth and new housing construction.

C. Key Findings

- Housing prices reflect recent residential construction activity, anticipated building activity in an area, the types of units available, and locational and amenity factors.

- Restrictions on residential building activity would raise home prices in the short run. Long run effects on home prices would depend on how the economy can be expected to grow in the future. Residential building caps would have little impact on the housing market over the long term if economic growth is slow, but could result in significant housing price increases if growth is high.

- Even with strong growth in the U.S. economy, San Diego job growth will be slower during the next 7 years than in the 1975-1985 decade. Nevertheless, economic growth could still be as high as close to 4 percent annually. Even with such strong growth, a severe residential building cap in the City of San Diego (4,500 dwelling units) would reduce total jobs regionwide in 1995 by less than 1 percent. The hardest hit sector would be construction, with job losses of about 3 percent due to caps. Housing prices, however, could increase on average countywide by as much as 2.5 percent.

- Residential building caps would have very little effect on population growth, but the average household size would increase slightly with severe building caps.

- Residential building caps could have significant effects on per capita income levels. If economic growth is strong, a 4,500 unit residential building cap would reduce per capita income countywide by over 2 percent.

- Imposition of building caps also raises locational questions. Caps allocated by existing plan capacity will not reflect the likely distribution of building activity under unrestricted market conditions. Thus, sub-city caps imposed in conjunction with an overall cap could further lower the total number of housing units produced.

- Because employment effects of caps are very small, they will have few differential impacts on specific minority groups or income groups. Housing price impacts, however, may be felt differentially by different minority or income groups, especially if exacerbated by sub-city caps.

- Because residential building caps do little to stop employment or population growth, they will not solve the problems that underlie growth concerns in the City of San Diego.

D. Implications

- The issues facing the City of San Diego--such as traffic congestion, open space preservation, infrastructure capacity, and fiscal balance--are better addressed by means other than residential building caps.

- The city's transportation problems cannot be solved by the city alone. A solution will require participation of other jurisdictions, residential developers, and major employers.

- In addressing the open space issue, the city will need to consider combining the purchase of more land with more intensive management and enhanced use of existing open space.

- Constraints on water supply, sewer capacity, and electric power supply may limit the city's growth whether or not caps on residential construction are enacted.

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CHAPTER 1: ISSUES AND APPROACH

A. Growth Issues

The City of San Diego experienced rapid employment and population growth both during the 1970's and 1980's. During the latter period, the rate of growth and the environmental and fiscal consequences of growth have become issues of increasing concern to city residents and officials. Most recently, several proposals have emerged addressing methods of slowing growth in the city. In 1987, the city enacted the Interim Development Ordinance, limiting new residential building permits to 8,000 permits annually for an 18 month period. Since that ordinance was enacted, a citizen's initiative has qualified for the ballot that would also cap residential permits at a level between 4,000 and 9,000 units annually, depending on existing environmental, infrastructure and traffic conditions in the city.

As caps of varying levels have been discussed, questions have been raised about the effects of the potential caps on housing availability and affordability, on job growth and income levels, and on the environmental and fiscal problems that have led to growth management proposals. This report focuses on the economic issues that have emerged in the current growth management debate. The study centers on several key questions, including:

1. How will growth management affect housing prices in the San Diego region? In particular, how sensitive are housing prices to land use controls?

2. How is the San Diego County employment base likely to grow and change as a result of residential growth management, and what will this mean for population growth and housing demand?

3. What feedback effects would growth management techniques, and particularly residential building caps have on employment growth and job opportunities?

4. How are the locations of jobs, population and housing affected by different levels of growth and building caps?

5. How is the mix of housing type affected by different growth management approaches, and what are the consequences on income levels and affordability?

B. Overview of the Approach

The research proceeded in several stages. First, the market for home sales was analyzed for the period between 1980 and 1987, with special attention given to the factors, including land use policies, that determine housing prices.

Second, a long-term analysis of the San Diego County economy was undertaken, which: (1) identifies the sources of regional job growth; (2) describes the historical interactions between job sectors and building activity in San Diego County; (3) projects future employment, housing, population, and income growth levels through 1995; and (4) presents the implications of alternative growth management policies on long-term job growth, home prices, rents, and income levels. The analysis considers both the effects of job growth on the demand for housing and the effect of housing caps on job growth.

A third area of analysis addresses the locational distribution of future growth. Factors influencing the location of new jobs and housing units were identified and the location of new job and housing unit growth was projected for alternative levels of growth and of growth management.

Finally, the analysis draws on findings from each of these three modeling efforts to discuss some of the social implications of alternative growth levels and patterns. The analysis identifies the types of changes (e.g. housing price v.s. jobs availability) most likely to have social consequences for the region's population and labor force, and discusses which groups (by ethnic category, education level, or income level) are most likely to feel the effects of these changes.

Because all of the proposals under discussion have involved residential building caps, the research methods used are designed to evaluate the housing market and employment base under different levels of residential building activity. The methods lend themselves to analysis of some other methods of control as well (e.g. removal of sensitive lands from the building base), and the findings may inform discussion on some other types of growth management.

C. Key Findings

The analysis reported here leads us to several key conclusions. First, housing prices are sensitive to the amount of land available for residential use and to recent single family housing construction. Second, future employment levels will be determined largely by the level of growth of the U.S. economy and by the existing structure of the San Diego economy, rather than by particular changes in local housing permit and land use policy. Third, housing caps of the levels under discussion will not significantly slow the pace of employment or population growth, but could have significant effects on regionwide housing costs and income levels by 1995. Fourth, both the environmental and social impacts of the proposed caps could vary, depending on they how affect the location of new growth as well as the level of new growth.

CHAPTER 2: ASSUMPTIONS AND DEFINITIONS

The analysis and results reported herein are based on some specific but simplified assumptions about future land use policies both within the city and in the surrounding county and on some specific definitions relating to the San Diego housing market.

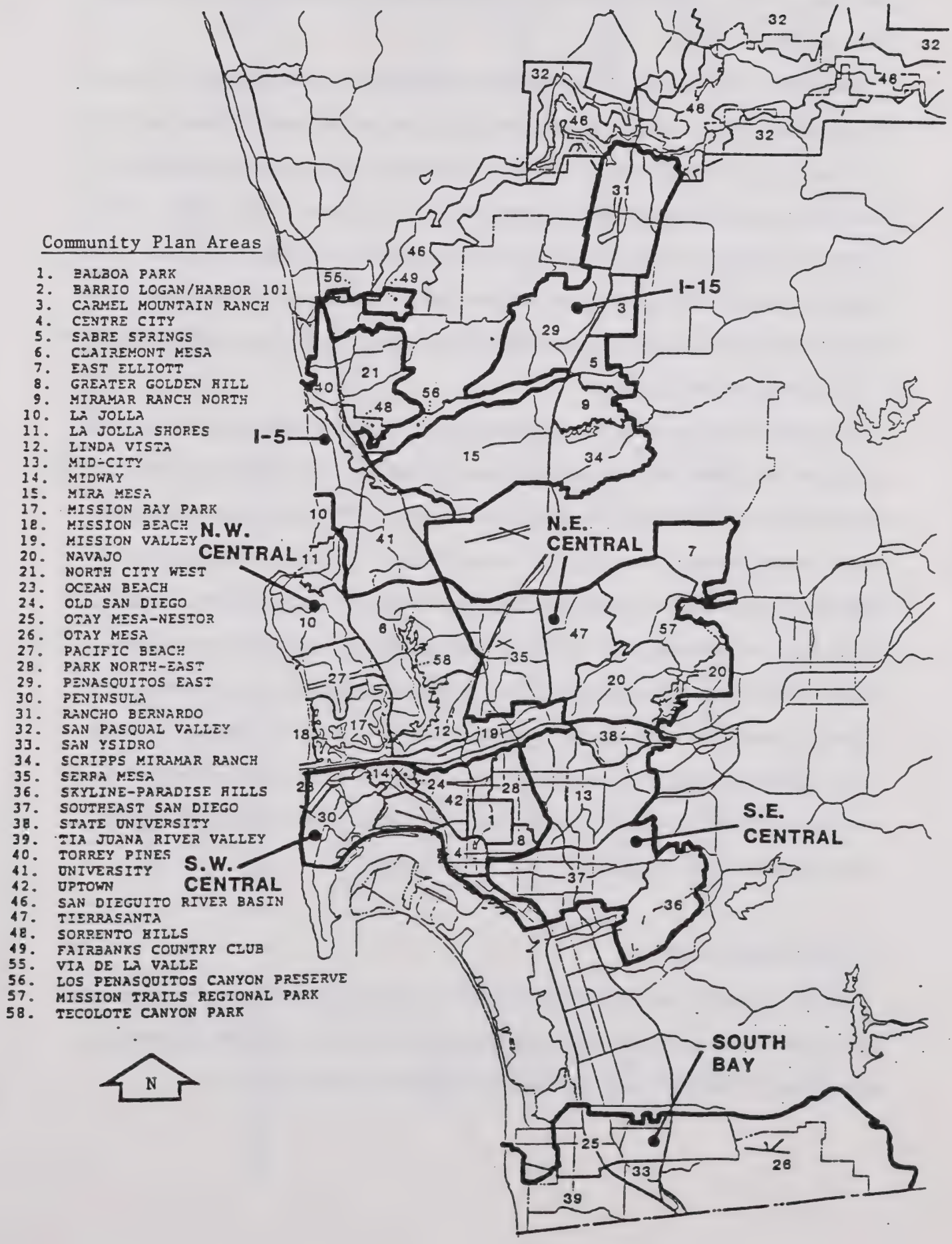
A. Submarket Definitions

For the purposes of housing market analysis, the City of San Diego and remaining areas within the county are divided into 10 large subareas, referred to in this report as "Superdistricts," as shown in Figure 2-1. (An eleventh category, "Other County", includes some residual areas within the county where development is generally excluded). While each superdistrict contains a great variety of housing types and a heterogeneous population base, each geographic area has on average, characteristics that distinguish it from other areas, in terms of average housing prices, employment mix, and transportation access. The seven superdistricts within the City of San Diego were defined in consultation with city staff and the Citizens Advisory Committee on Growth and Development (CACGD) steering committee. Superdistricts 8, 9 and 10 (North, East and South County) were defined for research purposes on a geographic basis alone.

B. Growth Management Alternatives

Because the growth management debates in San Diego have centered around residential building permits, the analysis herein looks at effects on the housing market and the economy of three alternative levels of allowable building activity. The levels selected by city staff and the CACGD steering committee were 12,000, 8,000, or 4,500 residential building permits annually. These are treated in our analysis as caps, rather than absolute levels of building activity. Thus, if economic growth would generate demand for only 7,200 residential permits

Figure 2-1: Superdistrict Map



in the city of San Diego in a given year then building activity would be unchanged from market level under a 12,000 or 8,000 unit cap but would be reduced by 2,700 units under a 4,500 unit cap.

In addition to specific caps on building activity, differences in the allocations of permits by superdistrict are also considered, in order to clarify the consequences of locational choices for the housing price effects and the jobs/housing balance. For illustrative purposes, the seven City of San Diego superdistricts were divided into "suburban," (I-5 Corridor, I-15 Corridor, South Bay) and "urban" (Northeast Central, Northwest Ventral, Southeast Central, Southwest Central). The suburban superdistricts include San Diego Community Plan Areas (CPAs) generally designated as Planned Urbanizing, while the urban superdistricts include CPAs generally designated as Urbanized.

Each of the two more stringent cap alternatives of 8,000 and 4,500 annual dwelling unit permits are considered under both a predominately urban and a predominately suburban mix, as shown in Table 2-1. Under an urban emphasis, 60 percent of all new residential building permits would be directed towards CPAs in superdistricts 3, 4, 5 and 6. Under a suburban emphasis, 60 percent of new building permits would be issued in superdistricts 1, 2 and 7. Within this broad suburban or urban allocation of permits, each superdistrict is assumed to receive a share of new units according to its share of remaining urban development capacity in the city, as reported in the various Community Plans. As shown in Tables 2-2, and 2-3, such re-allocations could lead to significant locational shifts in total housing construction and in the amount of total housing allocated to each superdistrict. (See Appendix A for more detailed discussion of how the mix of caps was determined).

C. Other Assumptions

The City of San Diego is not an island but is part of a larger housing market that includes other cities and unincorporated land in the county and even places in neighboring counties. How the rest of the county and other neighboring areas respond to growth

Table 2-1: The Alternatives

Alternative	Total Annual Residential Construction	Allocation	
		Urban	Suburban
1.	12,000 units	Unconstrained	
2a.	8,000 units	60%	40%
2b.	8,000 units	40%	60%
3a.	4,500 units	60%	40%
3b.	4,500 units	40%	60%

Source: CREUE

controls enacted at the city level will affect the impacts of the city's policy on housing prices and job growth within the city and in the county as a whole. If new housing units restricted within city limits are "taken" by other jurisdictions or by unincorporated areas in the county, the effects on countywide housing prices and job growth will be minimal, although some price effects may still be felt within city limits. If, at the other extreme, jurisdictions outside the City of San Diego retaliate with highly restrictive housing caps of their own, then the initial effects of a City of San Diego cap would become more significant, raising housing prices and lowering incomes still further.

The analysis presented here assumes neither spillover nor retaliation by other parts of the county. Building activity is assumed to continue within the county's other cities and unincorporated areas at the pace otherwise dictated by the market or by existing policy, regardless of which housing cap is selected by the City of San Diego.

Other land use policies may also be implemented in the City of San Diego, either separate from, or in addition to caps. The most likely will be some form of land use control over building activity on sensitive lands. Because data on the acreage of lands affected by such policies was not available when this analysis was undertaken, the discussion here assumes no change in control over sensitive lands. We note, however, the housing market model described herein provides information that could be used to assess the effects on housing prices of the removal of sensitive lands from the base of developable lands.

CHAPTER 3 : SHORT-RUN ANALYSIS: THE EFFECTS OF BUILDING PERMIT CAPS ON SINGLE-FAMILY HOME PRICES

One method for analyzing the effects of building permit policies on housing market behavior is to identify how land use factors and building permit rates are reflected in the observed sales prices of homes. This can be done by looking at actual home sales and analyzing how the physical characteristics of the home, the location of the home, real estate market variables such as building activity, and land use controls contribute to determining the price of the home. Using this information, we can then look at how prices might change if building permit policies change. We note that this is a decidedly "short run" analysis; it looks at the direct price effects of a change, without considering how a land use policy (e.g. a severe building cap in one location) might indirectly affect other factors (e.g. the type of home built in other locations).

A. Key Findings

Several key findings of this analysis can help inform the debates on housing affordability versus quality-of-life concerns in San Diego. While land use policies affect the price of a home, so do amenity and quality of life characteristics. In particular:

- Single family home prices are lower when building activity is stronger. On average, the addition of a single new home to the supply of housing in a superdistrict drops average home prices in that superdistrict by about five dollars.
- Home prices are also lower in areas where additional building activity can be accommodated because developable land is readily available.
- Amenities such as a coastal location or a view can greatly increase the value of a home. This implies that destruction of the quality of a coastal location could affect both home values and how people value their quality of life.
- Homeowners will pay more to be closer to major employment centers. One interpretation of this finding is that what people value is shorter travel time. This would imply that increasing traffic congestion (which would increase travel times, not necessarily distances), particularly in peak commute hours, would have a quality-of-life cost that could be capitalized into the value of homes.

- o A single shock to the housing markets can have anticipatory effects that may dissipate over time. Thus, we estimate that anticipation of the IDO may have raised housing prices by about $5,000 as early as April 1987, but the effect may moderate or dissipate over time, depending on the actual level of building permitted.

- o Sensitivity to land use policy will vary by superdistrict, or submarket. The greatest inflationary effects of land use restrictions will occur in areas where development would be most sharply curtailed.

In sum, changes in land use policy can significantly affect housing prices. Effects may result from either changes in overall level of production, or in the amount of land available for use, and in the location of construction activity. Furthermore, both environmental amenities and transportation time are also valued by local residents. This means that many San Diegans are willing to pay additional housing costs for access to coastal amenities, or a shorter trip to work.

B. Method of Approach

Our analysis of the housing market uses a statistical approach called a "hedonic price" model. The purpose of such a model is to try to identify, by observing the actual prices paid for different homes, what value people place on different characteristics of the home. The model used in the study is described in detail in Appendix B, and is summarized briefly here.

For this analysis, we looked at a sample of 3,800 home sales in the City of San Diego and other parts of the county over a 7 year period, from 1980 through 1987. The home sales information was drawn from DAMAR Corporation's Real Estate Information System, and includes the actual sales price of the home, its geographic location and data on characteristics of the home (e.g. square footage, number of baths, view). Information on characteristics of Community Planning Areas (CPAs) and superdistricts was developed from data provided by SANDAG through SOURCEPOINT (e.g. 1980 household income, developable land available) and from calculations by the research team (e.g. freeway distance to employment centers).

In completing our analysis of the housing market in San Diego County, we also addressed the question of how much submarkets within the county truly differ from one another. For

example, if building activity is cut back in one superdistrict, will homebuyers transfer their purchases easily to other parts of the city or county? Or will they look harder within the first superdistrict, thus pushing up housing prices more dramatically in one area, rather than much more gradually throughout the city?

C. Detailed Findings

Our analysis identifies a range of different factors that affect the price of homes, as listed in Table 3-1. The size and type of home is a key factor determining its price, apart from any other variables such as the availability of similar homes or the location of the home. Significantly, the location of the home, whether or not it has a view, recent building trends, and expectations about future building activity in the area, also contribute substantially to home prices.

The values and relative significance of the variables most at issue in San Diego's growth controversies are shown in Table 3-2. Clearly, amenities contribute heavily to the price of single-family homes. For example, we estimate that homes located in coastal CPAs sell for $31,000 more than comparable homes located in non-coastal areas. Similarly, we estimate that having a view adds an additional $16,000 to the home price. Weighted distance to employment is also significant, reducing home prices by $1,300 for each one mile increase in distance (weighted by employment level of the nearest employment centers).

Real estate market variables also significantly affect home prices. Areas with a higher share of land still available for residential development tend to have lower prices, all other characteristics being equal. Similarly, areas that have had higher building activity in recent years are likely to have lower prices. When the market is considered as responding quite widely (such that effects are not limited to the particular superdistrict where a decrease or increase in building activity occurs), a reduction in building activity by 1,000 units would increase the average price of homes in that superdistrict by about $5,000.

Table 3–1: Factors Affecting Single Family Home Prices in San Diego County

Characteristics of Housing Unit:
- Size
- Age
- Baths
- View

Location:
- Coastal CPA
- Distance to Employment Centers
- Superdistrict

Income:
- 1980 Household Income

Land and Housing Supply:
- Annual Completions by Superdistrict (in previous year)
- Ratio of Developable to Developed Land by CPA (in previous year)
- Interim Development Ordinance (IDO)

Source: CREUE

TABLE 3-2: THE PRICE EFFECTS OF AMENITY AND MARKET VARIABLES IN SAN DIEGO COUNTY

Effects of	$ Value Added per unit	* T Statistic
Coastal Location	+$31,000	16.23
View	+$16,000	8.86
One Additional Mile Distance to Employment	-$1,300	-7.09
Increase of 1 in Ratio of Developable to Developed Land the year before	-$20,000	-11.79
One more unit completed the year before - countywide	-$5	-4.04
IDO - citywide	+$5,150	1.81

* This is a measure of how confident we can be that the finding is accurate. A T statistic with an absolute value of 2 or greater implies that the coefficient is significantly different from zero with 95% confidence.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

These findings can also be used to analyze what the immediate, 1-year direct effects of the proposed caps would be on housing prices. Significantly, the price effects would vary by superdistrict depending on where caps are put into effect. For example, we estimate that in superdistrict 2 (I-15 Corridor), a reduction of building activity from the 1986 completion rate of 3,200 units to a cap of 1,100 (urban emphasis) could increase housing prices in that superdistrict by $7,000 dollars. Under a suburban emphasis, building permits in superdistrict 2 would be decreased to 1,600, thus increasing average home prices by $5,000.

In some superdistricts, the allocation of housing units under the caps was actually greater than recent building activity. If all permitted units were built out under the caps, then in the short run, new allocations could actually lead to price drops in some superdistricts and price increases in other superdistricts. Possible one-year changes are illustrated in Table 3-3.

We also used the model to explore the short run effects of the IDO on housing prices in the City of San Diego. The technique for doing this is to see whether, all other factors being unchanged, homes in the City of San Diego sold for higher prices after the IDO was first proposed than they did before the IDO. The IDO appears to have raised home prices in the short run by about $5,000, although the results for this variable are not as strong as for the other land use and location variables. (See discussion on significance levels, Appendix B.) It should be noted that the effect can be found as early as April 1987, and thus would represent a housing price increase that anticipates upcoming restrictions on housing availability. Over the longer term, we would expect this price increase to remain only if the IDO in fact significantly reduced housing starts from what they would otherwise have been.

The long term price effects of the cap on the city would depend on the degree to which these would reduce building activity from what it would otherwise be. These long term effects are discussed further in Chapter 5.

TABLE 3-3: SHORT RUN SINGLE FAMILY HOUSING PRICE EFFECTS OF CAP ALTERNATIVES (BY SUPERDISTRICT)

Superdistricts	Short-run Price Effects of Cap Alternatives on SF Home Price				
	12000 Cap	8000 Cap		4500 Cap	
		Urban Emphasis	Suburban Emphasis	Urban Emphasis	Suburban Emphasis
SD1: I-5 Corridor	-0.16%	0.43%	0.16%	0.66%	0.51%
SD2: I-15 Corridor	0.27%	3.45%	1.99%	4.73%	3.29%
SD3: N.E. Central	-0.86%	-0.77%	-0.49%	-0.40%	-0.24%
SD4: S.E. Central	1.94%	2.10%	2.59%	2.75%	3.02%
SD5: S.W. Central	-0.28%	-0.22%	-0.06%	-0.02%	0.08%
SD6: N.W. Central	-0.66%	-0.57%	-0.30%	-0.21%	-0.06%
SD7: South Bay	-3.81%	-1.44%	-2.53%	-0.48%	-1.09%

Note: RPOZ effects are not included.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

D. Limitations and Caveats

There are several important limitations to this type of analysis. First, the dollar estimates provide a sense of the magnitude of change, but should not be interpreted as exact dollar figures. For example, the actual average value of a coastal location could vary by several thousand dollars from the number estimated by the model. Second, the models explain only two-thirds of the variation in price among homes. Many other factors, such as the quality of construction within the home and detailed neighborhood characteristics are not included. These could bias the actual dollar estimates of effects of different factors.

Third, because data on sensitive lands and Resource Protection Overlay Zones (RPOZ) were not available, we have not done a sensitivity analysis on the effects of removing additional single-family developable land from the developable land base on different parts of the county. The price effects would be most severe in CPAs where the greatest reduction in the share of developable land would occur.

Fourth, the analysis is "static." In other words, it assumes that if one factor changes, other factors remain the same. For example, if building permits are severely curtailed in the I-15 Corridor but are expanded in the South Bay, the analysis assumes that new homes would actually be built in the South Bay, and that these homes would continue to be of the same general type as those homes already in the South Bay. In fact, builders might not expand building in the South Bay, if they felt homes there would not sell. In such a case, the effect of limiting housing activity in the I-15 Corridor, would be to increase the prices of homes countywide. Furthermore, to the extent that additional homes are built in locations where they might otherwise not go, the new homes may be of a different quality, and designed for a different market segment, than the older homes. These potential "spillover" effects are discussed further in Chapter 5 of this report.

CHAPTER 4: LONG-RUN EMPLOYMENT AND HOUSING TRENDS

Among the questions raised early in this study were the long-term effects of the proposed dwelling unit caps on employment growth, on San Diego's continued ability to attract and create job growth, and on the subsequent effects of employment growth on population and housing growth. To address these issues, we analyzed the interactions among employment growth, housing production, housing prices and income over a 21-year history for San Diego, from 1965 through 1985. The relationships identified from this analysis are used to examine how growth might occur in the future, and the degree to which dwelling unit caps might affect growth levels and related factors.

A. Key Findings

One reason that growth has become such a concern in San Diego, is the fear among many residents that the rate of growth that produced such a boom in employment and population growth since 1970, will continue. In fact, growth in the 1985 to 1995 period is almost certain to be slower than it was in the previous decade. How much growth slows will color the outcome of any growth policy. With this in mind, the major key findings include:

- The actual housing price and income effects of dwelling unit caps will depend on how much growth would occur in the San Diego economy without caps. Under a low rate of employment growth, building would be low enough that even a 4,500 unit cap would barely reduce permit levels. On the other hand, if economic growth is high, a cap of 8000 units would reduce housing production significantly from the level that would otherwise occur.

- A 4,500 unit cap, given strong employment growth, would increase the average price of housing countywide in 1995 by about 2.5 percent from the level that would exist without caps. Actual housing prices in the City of San Diego would rise more sharply.

- If employment growth is only moderate, a 4,500 unit cap would cause housing prices to rise temporarily, during the early 1990s, but by the mid-1990s, such price increases would be largely abated.

- Although the proposed caps of 8,000 and 4,500 units would limit new construction, they would have very small feedback effects on total employment and population. Hardest hit

would be construction jobs, which would drop by up to 4 percent in the years when caps induce the greatest cutbacks in housing production.

- If employment growth is strong in the region, the proposed caps would reduce real per capita income countywide. An annual cap of 8,000 units would reduce 1995 per capita incomes by 1.1 percent, while an annual cap of 4,500 dwelling units would reduce 1995 per capita income by 2.1 percent.

- In sum, building caps are unlikely to significantly affect the absolute levels of employment and population growth. Dwelling unit caps will, however, produce at least short-term increases in housing prices, even under slow or moderate growth, and have the potential for significantly raising long term housing prices while reducing real per capita incomes.

B. Method of Approach

Our analysis of the long term employment and housing markets uses econometric models built on a 21-year history of growth in San Diego, from 1965 through 1985. From this technique, we have identified the outside factors driving the San Diego economy, interactions among economic sectors within the San Diego economy, the effects of building activity on job growth, and the effects of job growth and building activity on population and per capita income levels.

Multiplier techniques are coupled with the statistical analyses to determine housing permit levels, total housing stock, and the future occupational mix of the population. Data for the analyses come from several different sources. Employment data was compiled from the U.S. Bureau of the Census, County Business Patterns and from the Employment Data and Research Unit of the California Employment Development Department, Annual Planning Information. Other data came from Security Pacific Bank, from the Greater San Diego Chamber of Commerce, from the California Department of Finance, and from the CITIBASE data bank. Details of the model and data are provided in Appendix D. Related forecasts are shown in Appendix C, and the method of estimating changes in occupational mix are shown in Appendix E.

We believe the models realistically portray how growth might occur under different sets of assumptions and how caps would affect the economy under different levels of growth.

However, there are two important restrictions on this analysis. First, none of the forecasts given are actual pictures of San Diego's future. Rather, because the future is uncertain, different levels of growth are presented to show how the implications of different growth policy choices will vary with different growth rates.

Second, this technique assumes the basic relationships in the economy would not change significantly from the way that they have existed in the recent past. A very severe change to the housing base (e.g. no units constructed in the city or severe reactive caps countywide) could change the way people respond to the housing market. Similarly, national changes in economic structure could make individual sectors more or less sensitive to changes in San Diego's housing market and employment base.

C. Detailed Findings

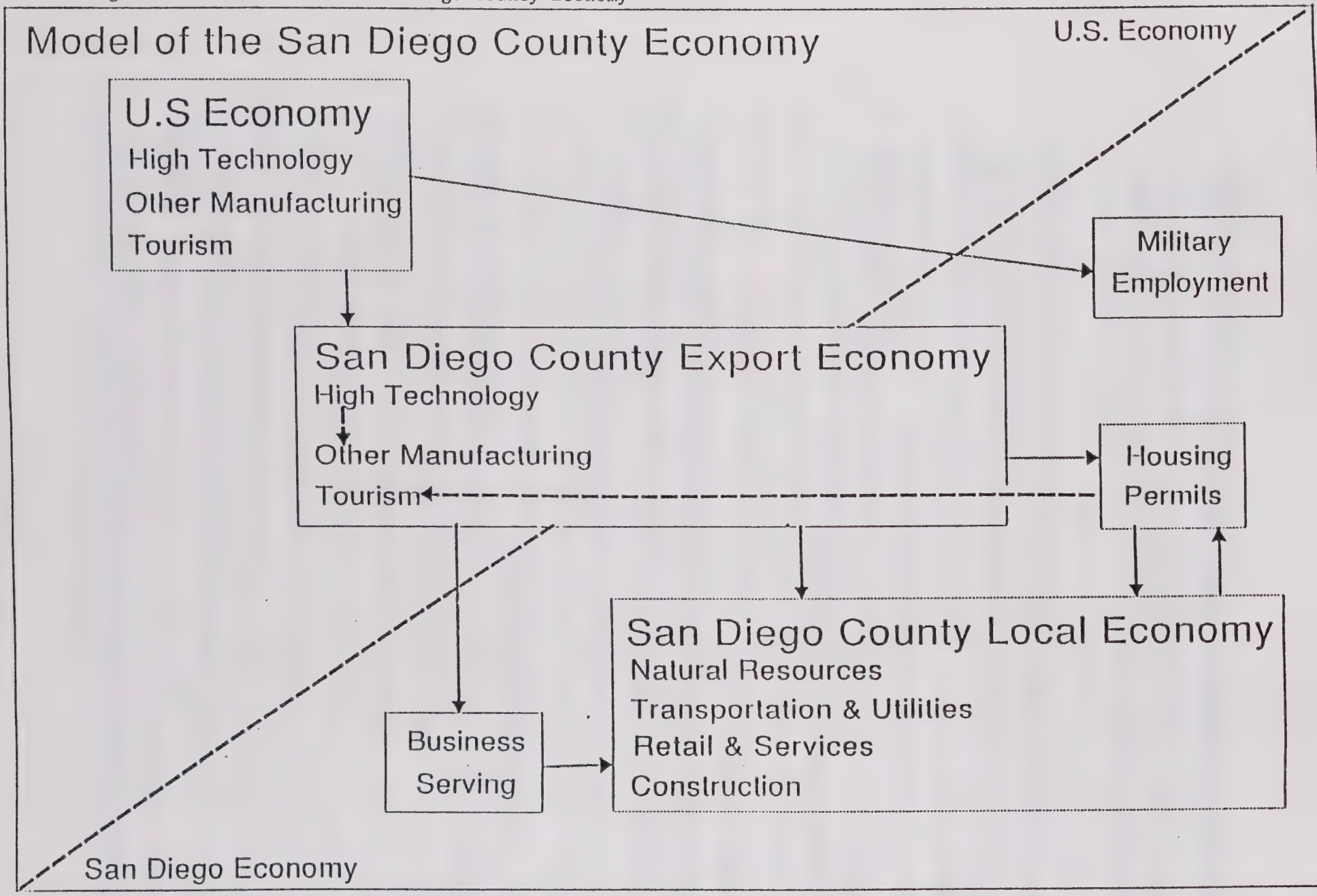
Our analysis addresses the structure of San Diego's economy, how fast it is likely to grow in the future, how much building activity affects growth, and the likely effect of dwelling unit caps on job growth, population, housing production, housing prices, and income levels.

The Structure of the San Diego Economy

Figure 4-1 shows the structure of San Diego's employment base. How much job growth occurs depends ultimately on how well the U.S. economy does. In addition, job growth depends on the relationship between U.S. sectors and the region's basic (or export) sectors, and the interrelationships among basic and non-basic sectors within the region.

San Diego employment sectors directly affected by U.S. growth (the basic or export sectors) include high technology manufacturing, other manufacturing, and tourism (definitions of each of these general sectors are given in Table 4-1). Business-serving sectors (such as wholesale trade and financial services) are closely tied to the export economy. Export and business serving jobs spur both housing production and employment in the local serving

Figure 4-1: Model of the San Diego County Economy



Source: CREUE

TABLE 4-1: DEFINITIONS OF THE FORECASTED EMPLOYMENT SECTORS

Sector	Component Industries
High Technology	Chemicals, Machinery except electrical, electrical and electronics equipment, transportation equipment, instruments
Other Manufacturing	All manufacturing other than high technology
Extractive	Agricultural services, fishing, and mining
Tourism	Restaurants, hotels, amusement and recreation places, and museums
Construction	All construction industries
Transportation/ Communications/ Public Utilities	All transport, communications and utilities sectors except local transport
Business-serving	Wholesale trade, banking, savings and loans, and business services
Local-serving	All retail except restaurants, local transport, finance, insurance and real estate, except business-related, and services except tourism-related
Government	Federal, state, and local government

economy, which includes such sectors as retail trade and services, natural resources, transportation and utilities and construction.

Baseline Employment Forecasts

We have developed three alternative forecasts of employment growth in San Diego County; a low, a moderate and a high forecast, for 1990 and 1995, as is shown in Table 4-2. The low forecast assumes that the U.S. economy grows at a moderate pace and that the growth produced in San Diego's export sectors is closely guided by the U.S. pace of growth. The moderate forecast assumes that San Diego's export sectors are driven by moderate U.S. growth but retain a greater share of their existing advantages over the U.S. as a whole. The high forecast assumes growth in San Diego's export sectors is spurred by strong growth in the U.S. economy.

The three forecasts shown in Table 4-2 are what we call "baseline" forecasts. Each baseline (low, moderate and high) describes how the economy is expected to grow absent any changes in land use policy (such as dwelling unit caps). We believe that San Diego's growth is more likely to resemble the moderate or high path of growth than the low path of growth.

Housing Permit Activity Under the Different Growth Scenarios.

Housing permit activity fluctuates widely over time, in response to changing growth levels in the economy and other factors such as interest rates. For example, between 1975 and 1985, housing permits in San Diego County varied from a low of 7,700 in 1982 to a high of 38,300 in 1985. Without dwelling unit cap restrictions in the city of San Diego, annual countywide housing permit activity could vary from a low of 8,000 units during the first half of the 1990s, (under a low employment growth forecast), to as much as 27,000 units (under high rates of employment growth). Under high economic growth conditions, a 4,500 dwelling unit cap could reduce total building permits by about 40,000 between 1989 and 1995. If economic

growth is more moderate during the early 1990s, the effects of the proposed dwelling unit caps on housing supplies, would be substantially reduced (see Figure 4-2).

Employment Effects of the Caps

Even under high growth conditions, total employment losses from the proposed dwelling unit caps will be very small. For example, under a high growth forecast, total private sector employment in 1995 would be about 911,000 assuming no building, caps and 904,000 with a dwelling unit cap of 4,500 (see Figure 4-3). The sectors most sensitive to building activity are construction, natural resources, transportation and utilities, tourism, and retail trade and services. Construction employment would experience the greatest percentage losses induced from the caps, dropping from a baseline level of 56,200 in 1995, to 54,500 under a 4,500 unit cap. This represents a 3 percent drop in construction employment. It should be noted that with or without caps, construction employment is likely to experience cyclical fluctuations in coming years (see Figure 4-4).

We estimate that a 4,500 dwelling unit cap, given high rates of economic growth would also produce a 1995 net loss of about 1,000 jobs in tourism, 1,000 jobs in transportation and communications, and 3,000 jobs in retail trade and services, when compared against a no-cap alternative.

Industrial and Occupational Mix Effects

Because dwelling unit caps produce very little change in employment, the effects on industrial mix and on the mix of job opportunities in the County are insignificant. The overall rate of economic growth (low, moderate or high) however, will have marginal effects on industrial and occupational mix. Under a higher rate of economic growth, the San Diego region will have a larger share of jobs in manufacturing, business serving, and construction and smaller shares of jobs in retail sectors, tourism, and government. The lowest shares of manufacturing jobs will occur under a low employment growth scenario (see Figure 4-5).

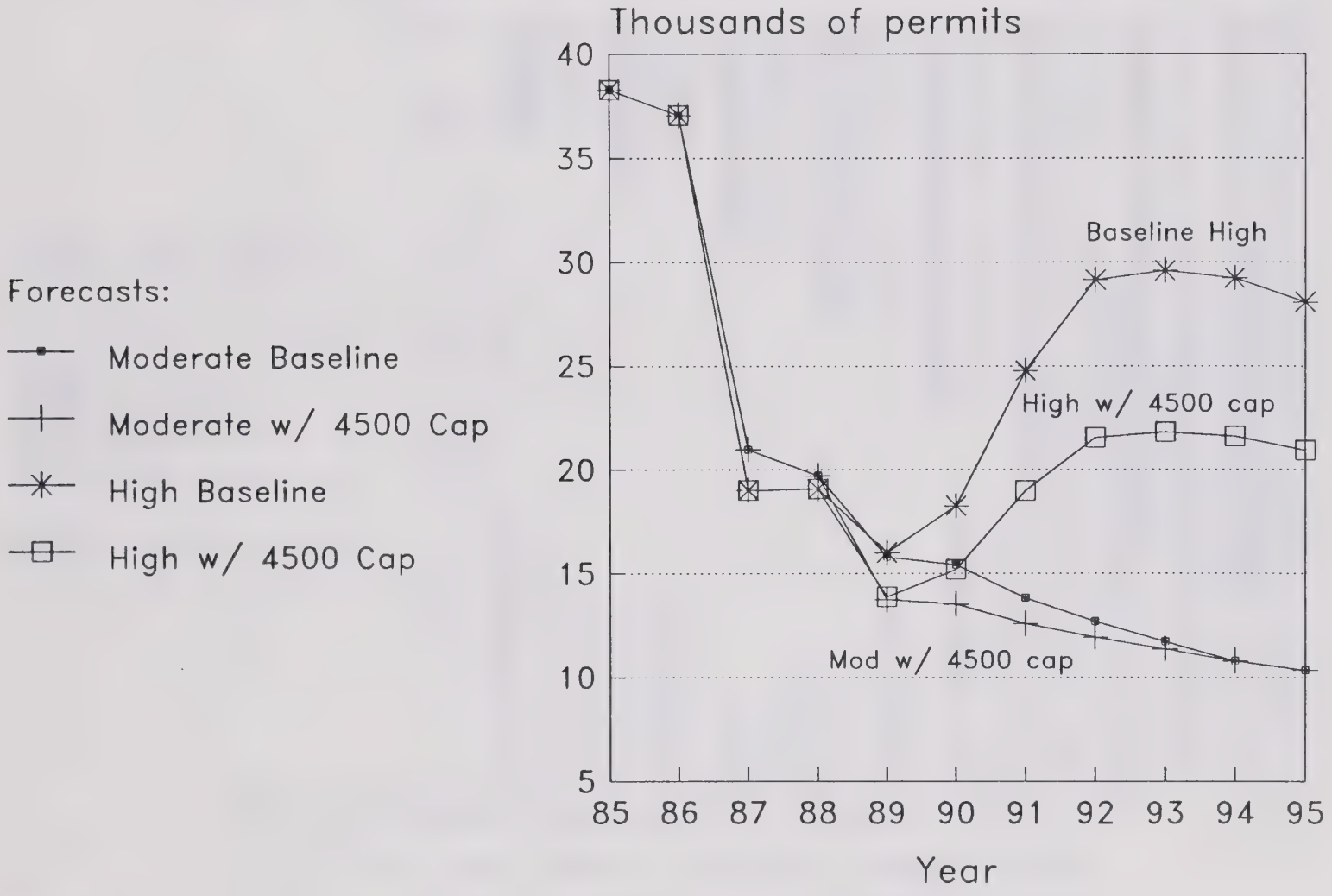
TABLE 4-2: COMPARISON OF EMPLOYMENT GROWTH SCENARIOS BY MAJOR SECTOR FOR SAN DIEGO COUNTY, 1985-1995

		1995 FORECASTS AND 1985-1995 GROWTH RATES					
		Low Growth Scenario		Moderate Growth Scenario		High Growth Scenario	
Sector	1985 Base	1995	1985-95 % Change	1995	1985-95 % Change	1995	1985-95 % Change
High Technology	88,003	88,385	0.4%	98,869	12.3%	115,813	31.6%
Other Manufacturing	33,175	31,424	-5.3%	35,743	7.7%	44,053	32.8%
Tourism	81,456	105,733	29.8%	109,293	34.2%	110,945	36.2%
Business Serving	103,739	128,819	24.2%	147,572	42.3%	181,654	75.1%
Natural Resources	6,736	6,968	3.4%	8,442	25.3%	11,238	66.8%
Construction	47,226	37,803	-20.0%	43,256	-8.4%	56,249	19.1%
Transportation/Util.	28,453	32,547	14.4%	36,407	28.0%	43,221	51.9%
Retail Trade/Services	256,503	323,240	26.0%	330,904	29.0%	347,754	35.6%
Total Private Employment:	645,291	754,919	17.0%	810,486	25.6%	910,927	41.2%
Civilian Government:	145,700	157,567	8.1%	162,409	11.5%	169,892	16.6%

Note: Does not include self employed, agricultural production, or military

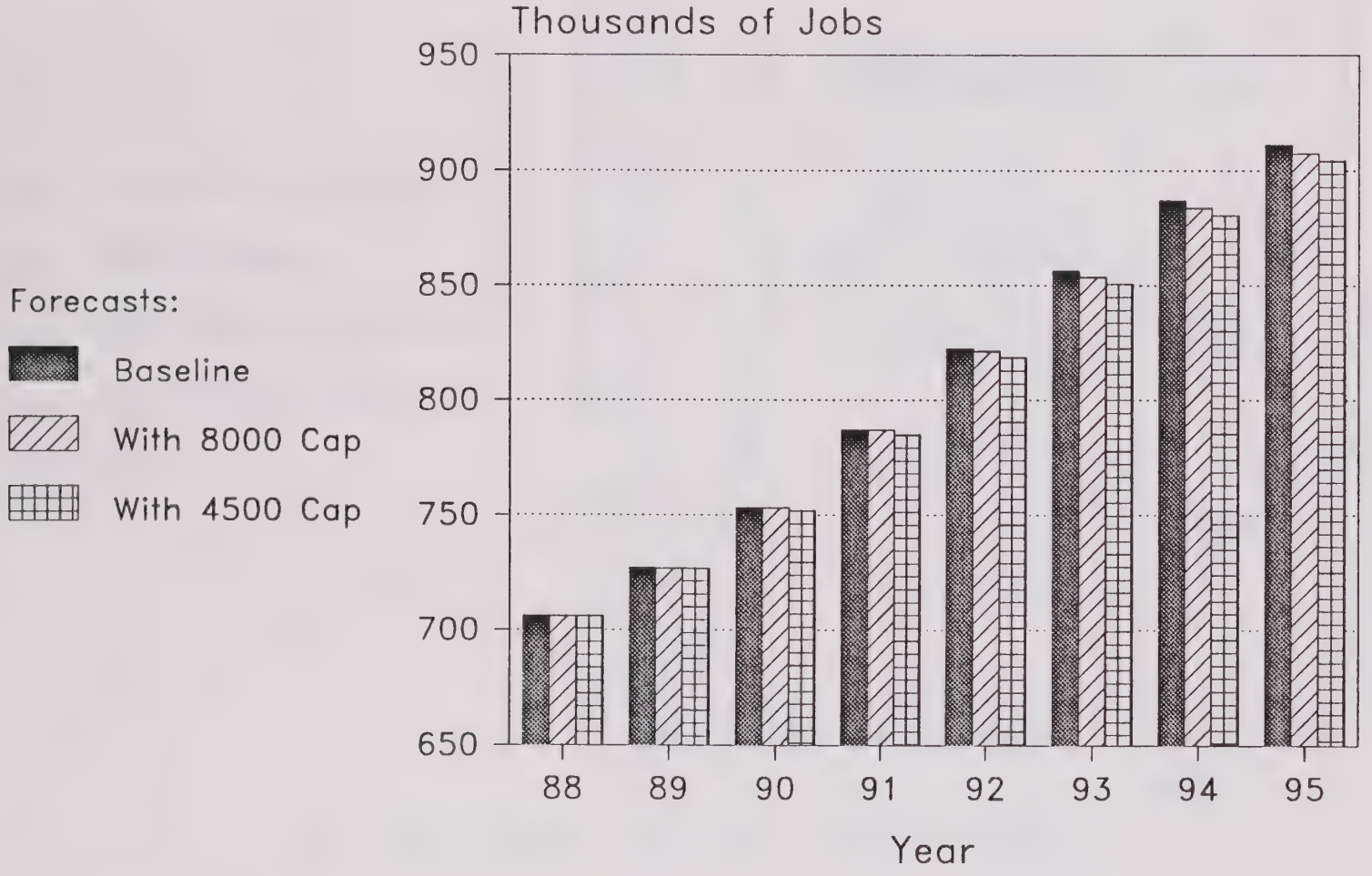
Source: CREUE, March 23, 1988

Figure 4-2: Forecasts of Total Permits for San Diego County, 1985-1995



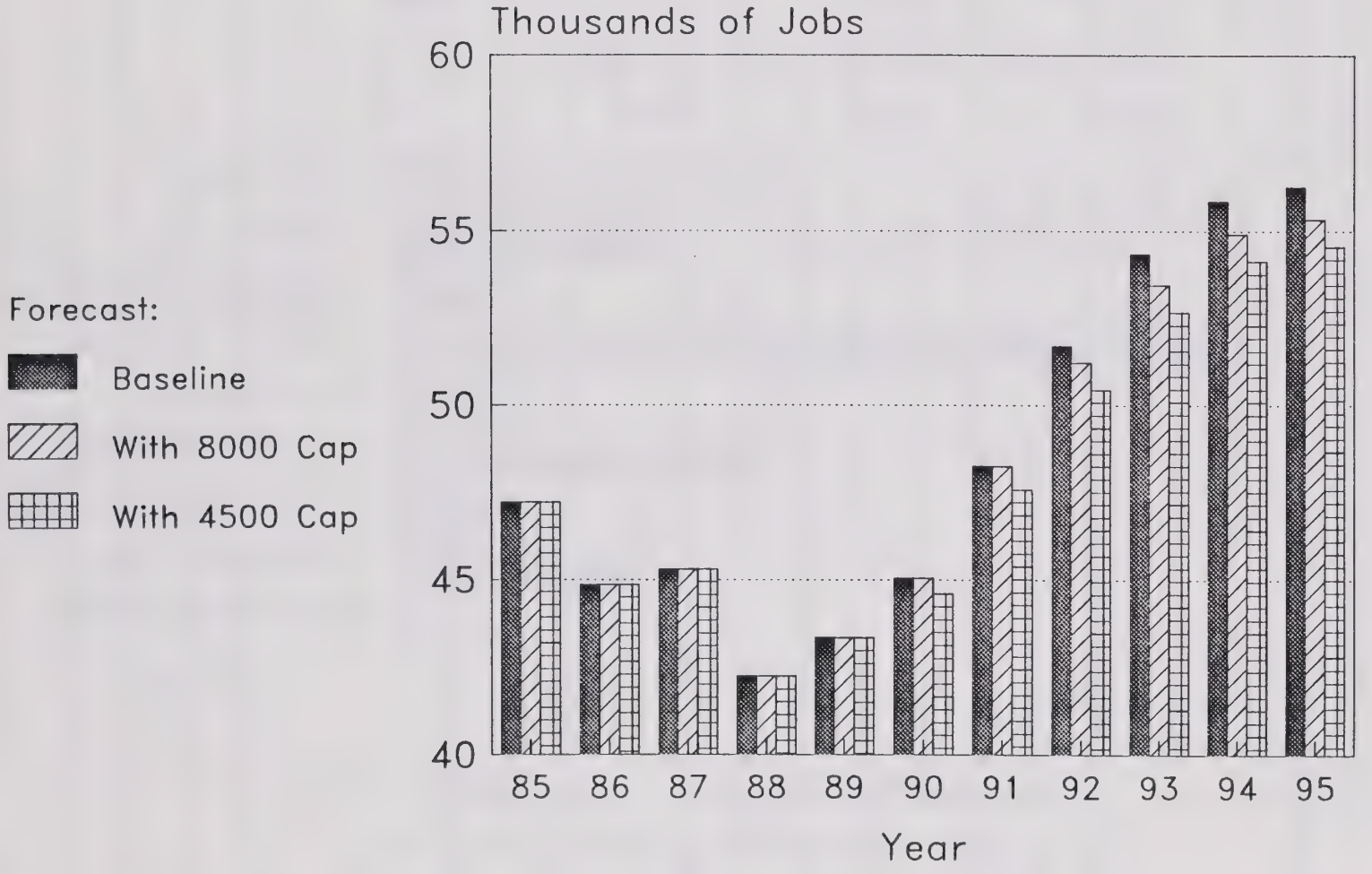
Source: CREUE.

Figure 4–3: Forecasts of Total Private Jobs in San Diego County, 1988–1995 High Baseline, 4500, and 8000 Scenarios



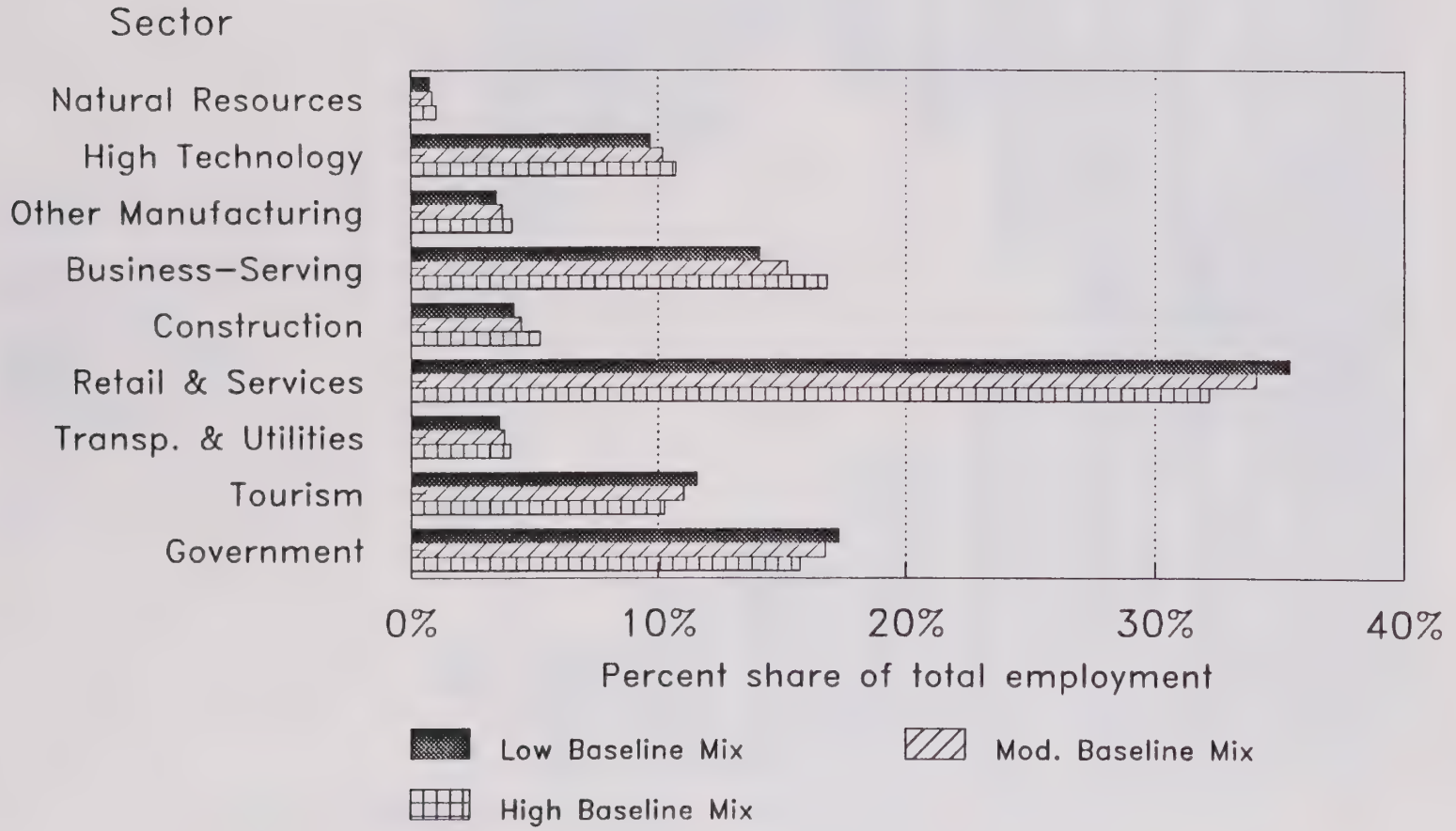
Source: CREUE.

Figure 4-4: Forecasts of Construction Jobs in San Diego County, 1985-1995 High Baseline, 4500, and 8000 Scenarios



Source: CREUE.

Figure 4–5: Forecasts of Industrial Mix for San Diego County in 1995 Low, Moderate, and High Baselines



Source: CREUE.

Similar shifts in occupational mix result from low versus high economic growth. High economic growth rates would produce a relatively large share of both production workers, and clerical and support workers. Low rates of economic growth would increase the relative shares of service and sales workers; shares of managers and professional and technical workers are virtually the same for each level of growth (see Figure 4-6).

Population Growth and Net Migration Effects

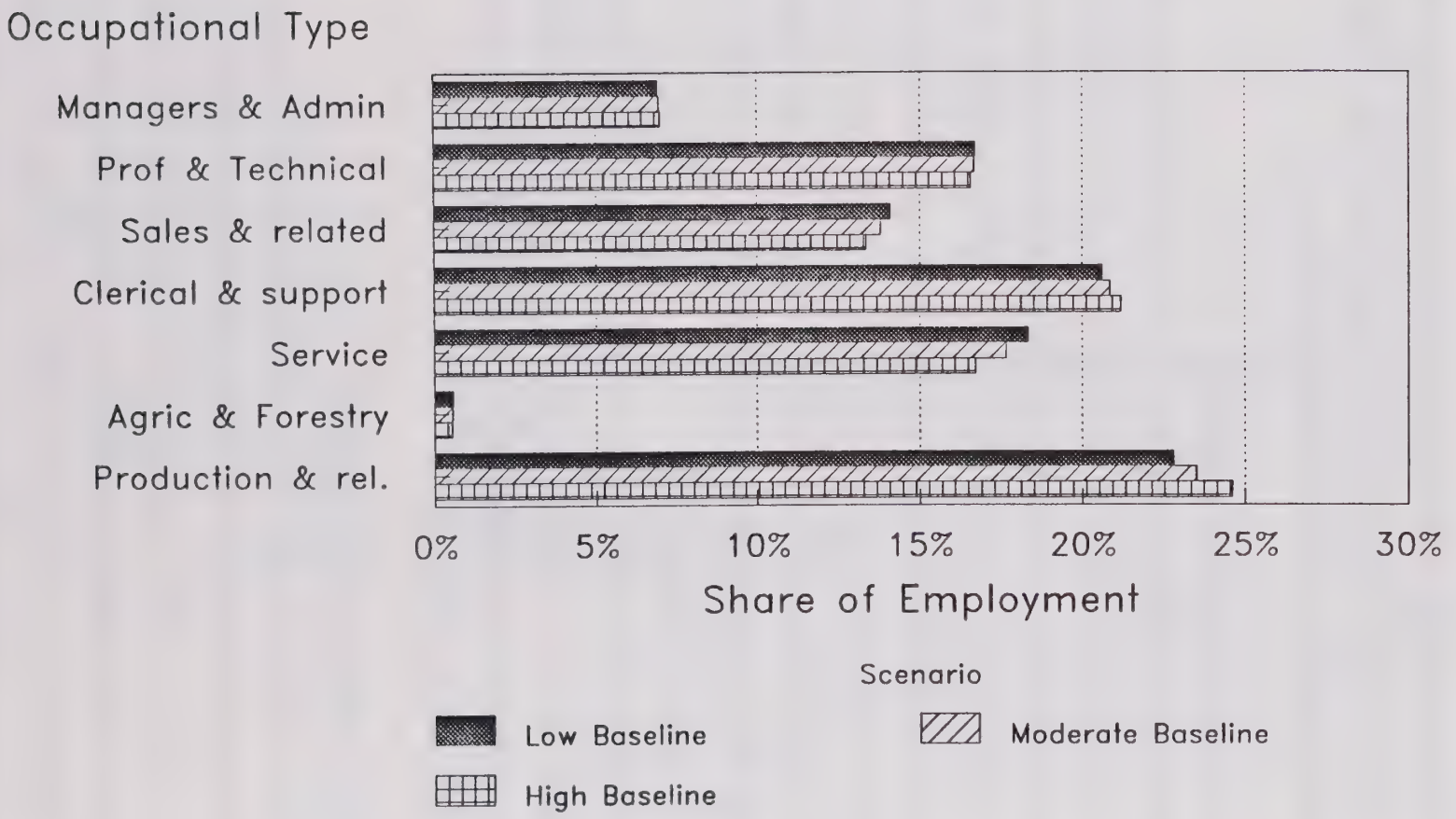
Population growth appears to be driven by the existing population base, changes in basic employment levels, and various attraction factors that are not easily quantified. Thus, while population growth may slow significantly if employment growth slows, dwelling unit caps are likely to have very little effect on the level or rate of population growth. Under high growth, a cap of 4,500 dwelling units may reduce population by less than 1 percent (Figures 4-7 and 4-8). Following 1995, the effect of caps on population growth would be even less, even under high employment growth. This is because the market level of housing production is expected to slow towards the end of the 1990s in response to an overall slowing of growth in the U.S. and San Diego economies.

Our analysis shows net migration to be sensitive to employment growth and per capita income levels. We note, however, economic factors explain only about one third of the variation in migration over time, indicating that much of the movement to San Diego may be dictated by personal considerations.

Housing Stock and Population per Household

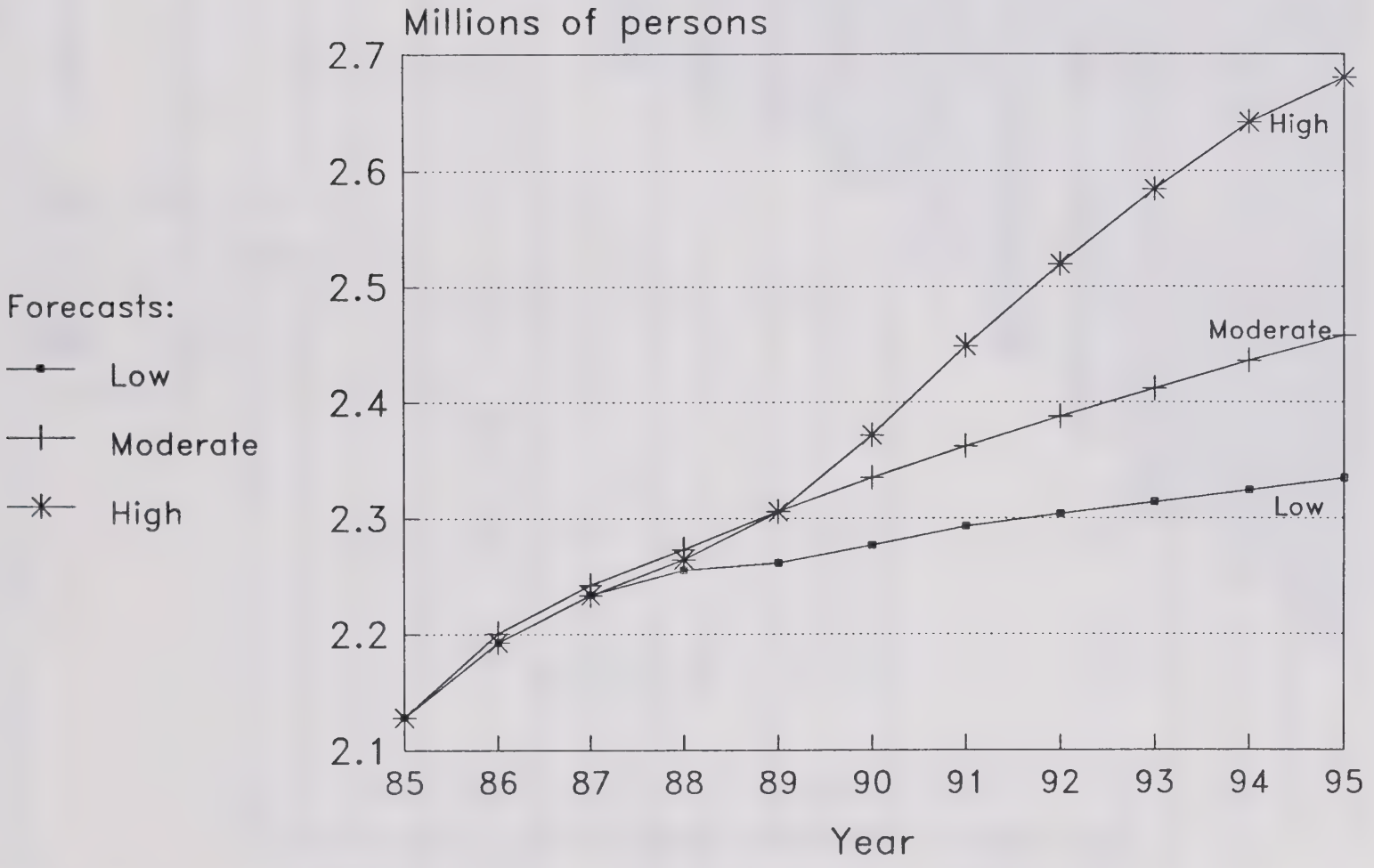
Without dwelling unit caps, housing stock in San Diego would be about 26.5 percent greater in 1995 than in 1985, under high growth. Moderate growth would increase housing stock by 19.9 percent, while low growth would increase stock by 16.9 percent. Caps could have a modest effect on average household size. Average household size in San Diego was approximately 2.70 persons per household in 1985. Without caps, this average would stay virtually unchanged in 1995, at 2.69 persons per household. With a 4,500 unit cap, population

Figure 4–6: Forecasts of Occupational Mix for San Diego County in 1995 Low, Moderate, and High Baselines



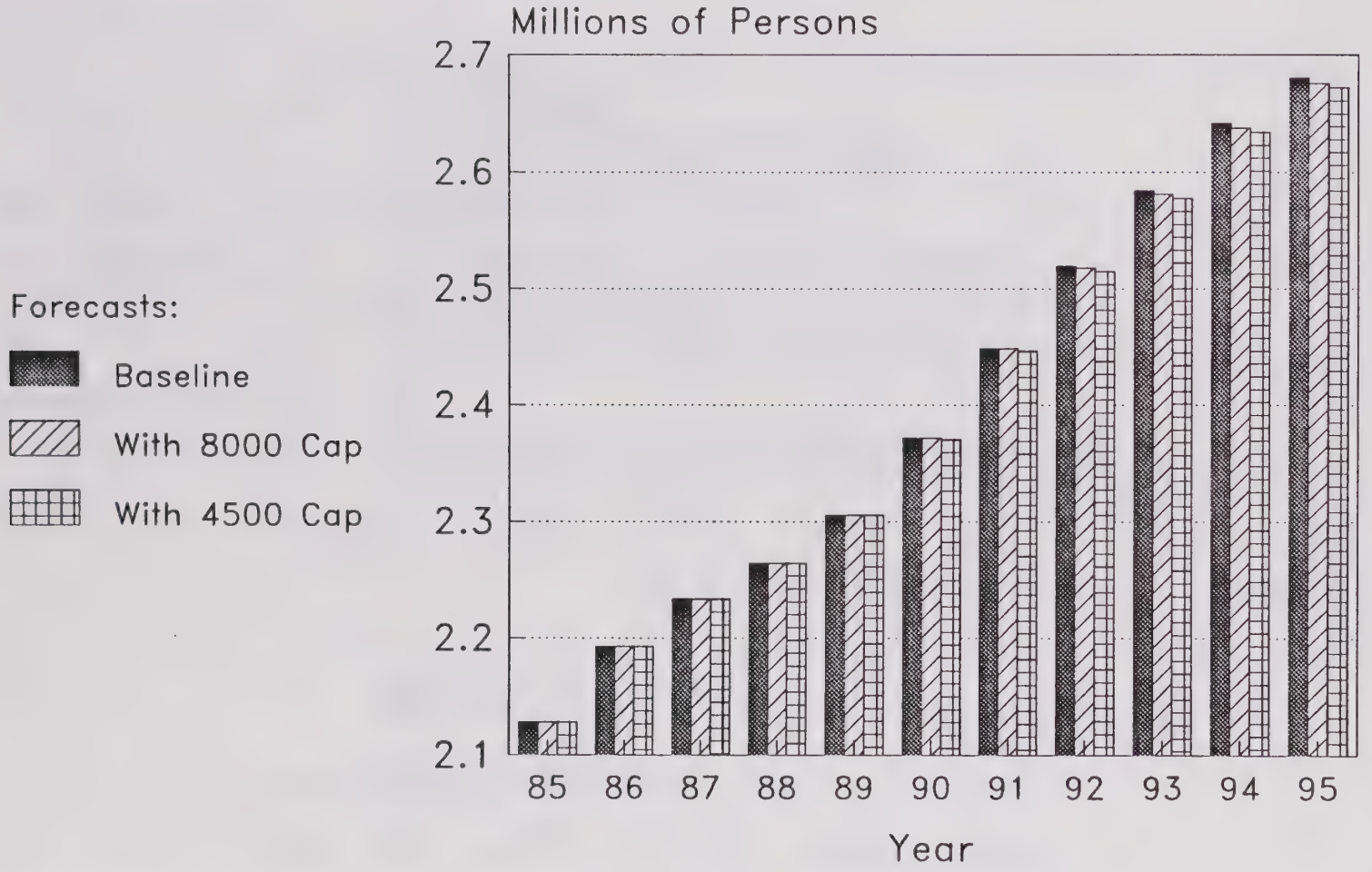
Source: CREUE.

Figure 4–7: Total Population Forecasts for San Diego County, 1988–1995 Low, Medium, and High Scenarios



Source: CREUE.

Figure 4–8: High Growth Population Forecasts, San Diego County, 1985–95 Baseline, 4500 and 8000 Caps



Source: CREUE.

per household could increase to as much as 2.76 persons per household. This is not an unreasonable level of change to occur in a tightening housing market. It does not imply drastic levels of "doubling up," such as two families sharing a single family home. However, it does imply that about one in every 15 households would have an additional person in it. Likely adjustments to lifestyles under these circumstances might be two young professionals sharing an apartment, where previously they might have lived separately or moved into single family homes, or an adult child continuing to live in the parents' home, rather than moving to their own residence.

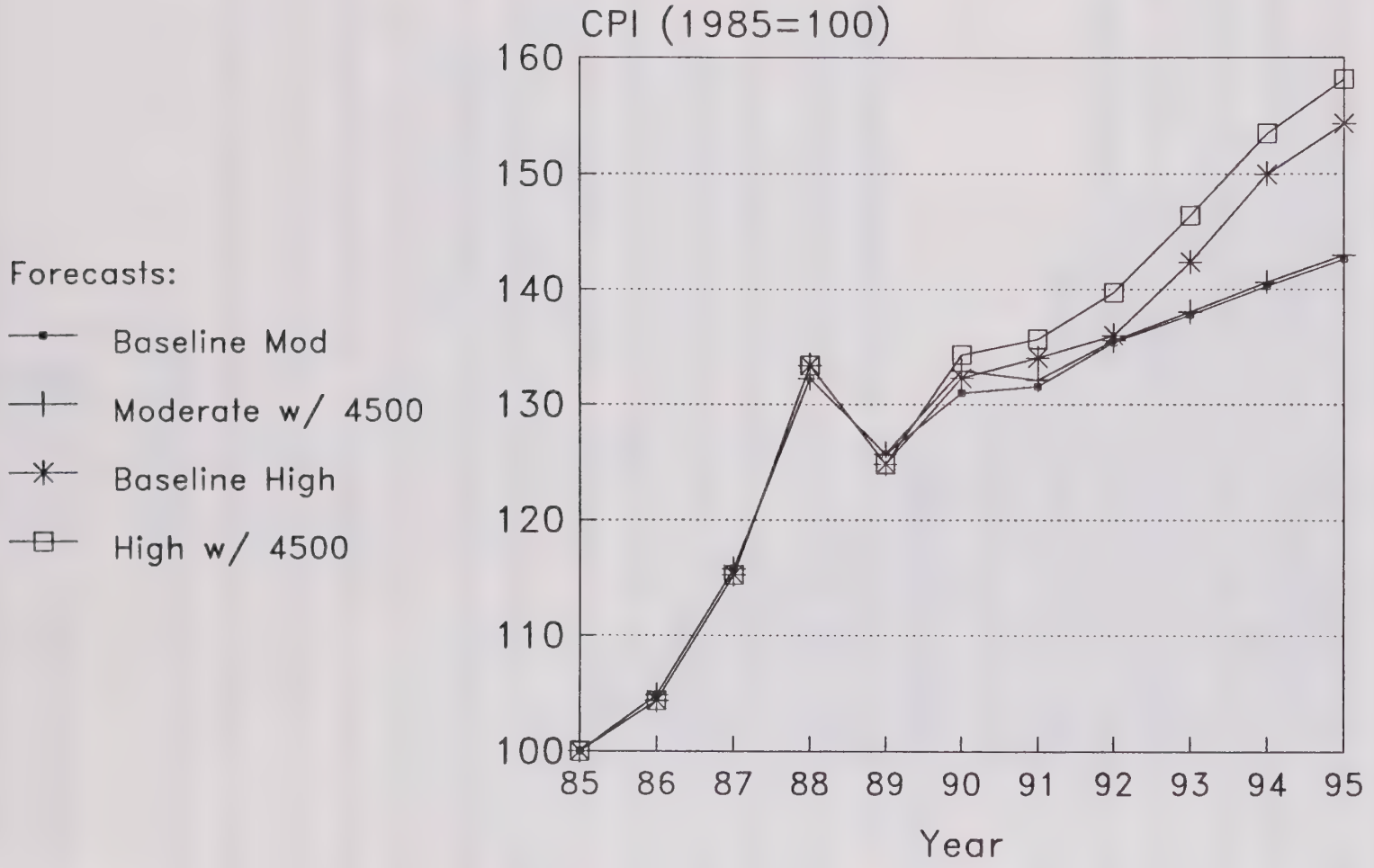
Long-run Housing Price, and Rent Effects

Sales prices of homes and rental rates would rise more rapidly under higher economic growth than under low or moderate growth. Housing prices in 1995 may be as much as 16 percent high if the economy grows strongly than if there is slow growth. This is a typical pattern in growing regions and is likely to be balanced by similarly strong growth in income. If housing production is capped during a period of strong growth, there will be price effects on housing. A 4,500 cap with high employment growth would raise housing prices by 2.5 percent in 1995, and by up to 3 percent during some intervening years. Rental rates would increase by 1.8 percent in 1995 under a 4,500 cap. Under moderate growth, housing prices would be 1.5 percent higher with a 4,500 cap in 1990, but the price difference would dissipate to under 1 percent by 1995 (see Figure 4-9). It should be noted that these price effects are the average over the entire county. The actual price effects are likely to be uneven across submarkets, stronger in the city than in the rest of the county, and strongest in submarkets of the city where caps have been the most stringent.

Per Capita Income Effects

Real per capita income (relative to spending increases in the U.S. as a whole) would also rise more rapidly with strong economic growth than under a low-growth scenario. A high rate

Figure 4-9: Relative Home Price Forecasts, San Diego County, 1985-95 Moderate & High Baselines, w/ 4500 Caps



Source: CREUE.

of economic growth would lead to real incomes (before inflation) 12 percent higher than would occur under low economic growth. A 4,500 unit cap would have no significant effect on per capita income under low or moderate rates of growth but would cut per capita income by over 2 percent under high growth. An 8,000 unit cap would cut per capita income by 1.1 percent under high growth (see Figure 4-10).

Unemployment Rate Effects

Our analysis of unemployment effects indicate that the effect of caps on overall unemployment would be very minor. Changes in unemployment levels would be on the order of 0.1 percentage points (e.g. the increase of unemployment from 5.0 to 5.1 percent in peak years of job loss). Unemployment in particular sectors could clearly be higher, with construction the most likely to feel such effects.

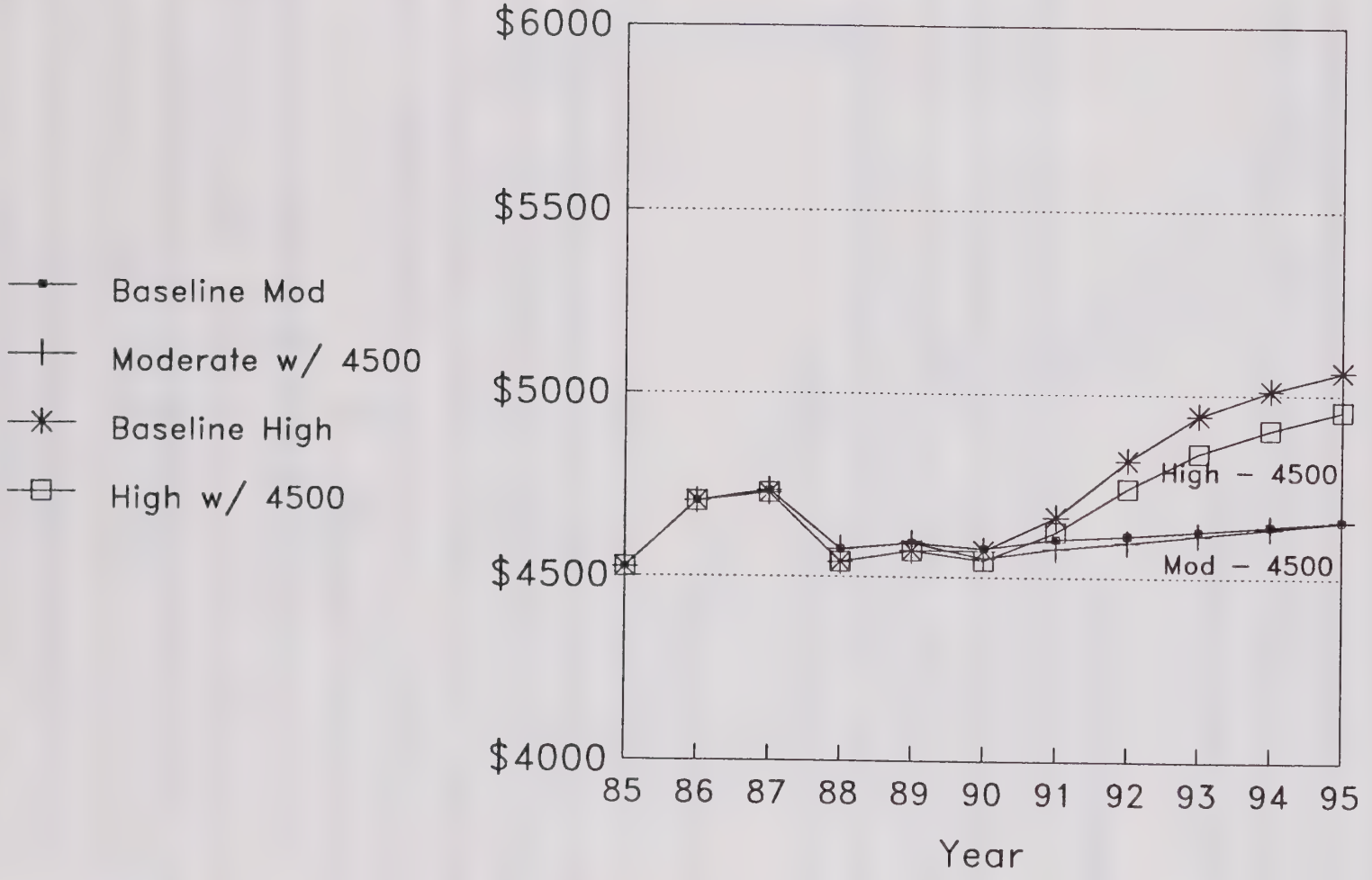
D. Caveats and Limitations

This analysis of long term change is only as strong as its assumptions and models. Several important limitations exist. First, as mentioned earlier, the models reflect historic relationships. In particular, growth in the past occurred with relatively unconstrained real estate markets. We found no evidence of housing prices affecting employment growth in our econometric models, but we cannot say with certainty that such effects would never exist, if housing markets became much tighter.

Second, we did not have sufficient data to assess the effects of nonresidential real estate prices and availability on job growth in the long term. While most research shows that employment growth drives the nonresidential real estate market, rather than the other way around, we do not know how severe constraints in this market would affect growth.

Third, the employment projections ultimately depend on the accuracy of the projections of growth at the U.S. level. The projections used are the Bureau of Labor Statistics forecasts of employment growth through 2000. If these projections prove to be inaccurate, then this

Figure 4–10: Real Per Capita Income Forecasts, San Diego County, 1985–1995 Moderate & High Baselines, w/ 4500 Caps



Source: CREUE.

could affect the possible outcomes for San Diego. Fourth, our projections assume relationships among sectors are static over time. This is not an unreasonable assumption over a ten year period. However, major changes in industries are possible during such short periods of time. Major breakthroughs in biotechnology, for example, might provide a new growth spur for San Diego beyond what is already projected because of its strength in those industries.

Finally, a number of other assumptions had to be made about the number of housing units added per job, the location where new homes would be built (inside or outside the City of San Diego), the share of new housing in single family units, the share of permits translated into housing units, and so forth. The sensitivity of conclusions to different sets of assumptions was tested frequently. In general, the basic findings proved to be quite robust. Our basic conclusions regarding the effects of residential caps on employment growth, income levels, and home prices did not change significantly, even under a number of different assumptions.

CHAPTER 5: EMPLOYMENT AND HOUSING ALLOCATIONS

Many of the problems generally attributed to unwanted growth are exacerbated by **where growth goes**. This section addresses the question of how employment and residential growth would be distributed without dwelling unit caps; as well as how the proposed caps would alter the market distribution of employment and housing.

A. Key Findings

Employment

- Because the "feedback" effects of the proposed dwelling unit caps on total employment are so small, the likely effects of the caps on the spatial distribution of employment growth will be negligible. The proposed caps would have a minimal effect on the spatial distribution of job growth.

- In absolute terms, we forecast that the greatest increment of job growth will occur in the I-I5 Corridor. Under the High Baseline scenario, we forecast that employment in the I-15 Corridor will increase by 116.4 percent, (or 53,938 jobs) between 1986 and 1995. Under the same scenario and over the same period, employment in the I-5 Corridor, Northeast Central, and Northwest Central areas will increase will increase by 68.6 percent, 42.5 percent, and 39.4 percent respectively. Except for the South Bay area, we forecast that San Diego's suburban areas will receive a disproportionate share of county employment growth between 1986 and 1995.

- Except in the case of construction employment, the availability of commercially developable raw land has not been a significant factor in explaining job growth. Thus, we do not forecast a large employment increase for the South Bay area, in spite of that area's large supply of developable land.

- In general, the current share of employment in an area is the best predictor of that area's ability to attract additional job growth. That is, new jobs go where existing jobs are. This is particularly true in the high-technology, business-serving, local retail, and tourism sectors. It is less true in the cases of construction and other manufacturing employment.

Housing

- If unconstrained by dwelling unit caps, new single-family units will be built close to existing concentrations of homes, as land is available. Multi-family developments will likewise, locate close to existing developments, and near available land for local services.

- Dwelling unit caps of 4,500 or 8,000, if allocated by remaining community plan capacity, will significantly change where new units are built in the City of San Diego.

- o If the proposed caps are designed in such a way to sharply constrain suburban development, there will be significant development spillovers from suburban to urban areas.

- o The eastern section of San Diego (superdistricts 3 and 4) would consistently receive fewer new units under dwelling unit caps than they would in an unconstrained situation. The greatest reduction in building in these areas would come under a 4,500 cap with a suburban orientation.

- o The South Bay area would consistently be allocated far more housing development under various types of building caps than would occur under normal market conditions.

- o A critical issue is whether builders would indeed shift their activities from growth-restricted to growth-enabled areas, and how the types of products produced by homebuilders would change in reaction to the proposed caps.

B. Method of Approach

The general framework for allocating job growth and housing units to community plan areas, superdistricts, and SANDAG traffic analysis zones is shown in Figure 5-1:

1. Yearly job growth (by major sector) in San Diego County, is projected through 1995, using the models profiled in Chapter 4 and Appendix D.

2. Total, and single-family housing permits (by year) in San Diego County are projected through 1995, and then converted into new housing units, using the models profiled in Chapter 4 and Appendix D.

3. Forecasted total housing stock is split into single- family and multi-family dwelling units according to the proportions of single- and multi- family permits.

4. Jobs (by major sector) are then allocated to SANDAG community plan areas based on the regression models summarized in Table 5-1, and explained in Appendix F. Allocations are made on the basis of employment share in the base year (1980), and share of available office or industrial space, or developable land, depending on the job sector. Note that these models allocate total jobs, not job growth. Put another way, the models allow for a redistribution of existing jobs, not just a distribution of job growth. Note also that the distribution of jobs is insensitive to whether housing growth follows a "Suburban" or "Urban" pattern.

5. Projected single- and multi-family units are then allocated to SANDAG community plan areas based on the regression models explained in Appendix F. Unlike the employment case above (in which all jobs can be reallocated), just the unit increment is distributed. In the baseline cases, housing unit allocations are undertaken using the appropriate regression models. In cases where the proposed caps would constrain development, allocation to superdistricts is consistent with the proposed dwelling unit caps (Table 5-5). Below the level of superdistricts, allocations are undertaken on the basis of remaining Community Plan capacity.

Figure 5-1: General Framework for Allocating Job and Housing Unit Growth

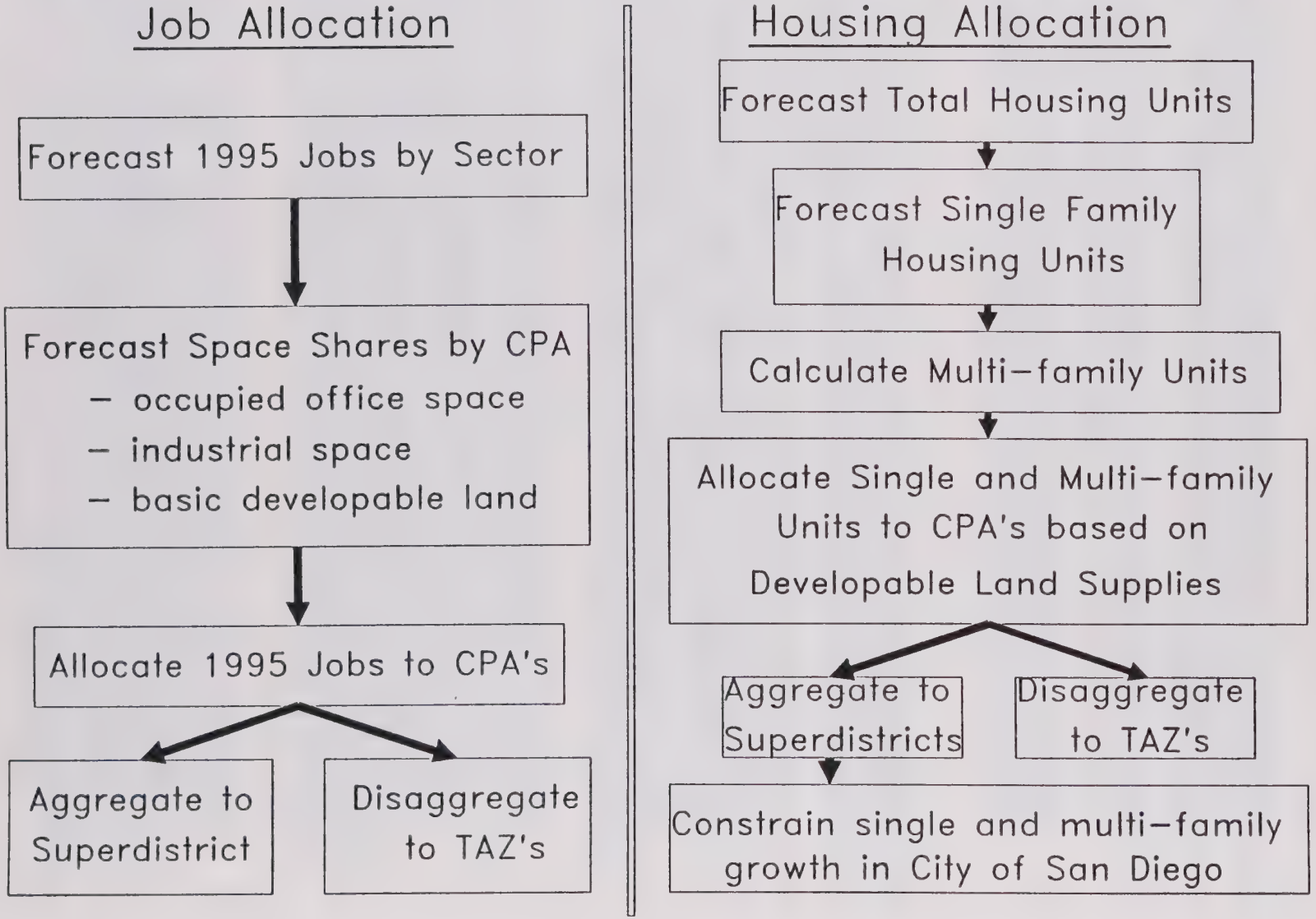


TABLE 5-1: ALLOCATION OF EMPLOYMENT AMONG CPAS AND SUPERDISTRICTS

SAN DIEGO COUNTY 1986 CPA SHARE OF EMPLOYMENT OR DWELLING UNITS IN	Previous Share of Jobs/Units	Share of Related Sector	DEPENDED ON Building or Land Supply by Superdistrict SD 1	SD 2	SD 3	SD 4	SD 5	SD 6	SD 7	SD 8	SD 9	SD 10
HIGH TECHNOLOGY	High Tech Share 1980		Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.							
OTHER MANUFACTURING	Other Mfg Share 1980			Indus. Sq.Ft.			Indus. Sq.Ft.			Indus. Sq.Ft.	Indus. Sq.Ft.	
NATURAL RESOURCES	Nat. Res. Share 1980					Indus. Sq.Ft.	Indus. Sq.Ft.	Indus. Sq.Ft.		Indus. Sq.Ft.		
TOURISM	Tourism Share 1980			Occ'd Office Sq.Ft.				Occ'd Office Sq.Ft.		Occ'd Office Sq.Ft.		Occ'd Office Sq.Ft.
CONSTRUCTION	Constr. Share 1980									Avail. Basic Land	Avail. Basic Land	
TRANSPORT., COMM., & UTILITIES	TCU Share 1980			Indus. Sq.Ft.			Indus. Sq.Ft.			Indus. Sq.Ft.		
BUSINESS SERVING	Bus.Srvg. Share 1980		Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.			Occ'd Office Sq.Ft.				
RETAIL TRADE AND SERVICE	Retail Share 1980	Bus.Srvg. Share 1986										
GOVERNMENT	State & Loc Govt Share 1980	Bus.Srvg. Share 1986	Bus.Srvg. Share 1986							Bus.Srvg. Share 1986		Bus.Srvg. Share 1986

Note: Does not include self-employed persons, employed in the armed forces, or in agricultural production.

Source: Center for Real Estate and Urban Economics, March 22, 1988.

6. When the proposed caps would constrain development, housing units are not allowed to "spillover" from the City of San Diego to other incorporated municipalities, or into unincorporated areas of San Diego County.

7. For the purposes of presentation, jobs and housing unit growth are then aggregated up from the Community Plan Area to superdistrict levels. For traffic analysis purposes, jobs and housing unit growth are disaggregated from the Community Plan Area level, to SANDAG's Traffic Analysis Zones.

C. Detailed Forecasts

Employment

Table 5-2 summarizes our 1990 and 1995 employment forecasts by superdistrict for the High and Moderate Employment Growth Scenarios, with and without dwelling unit caps; only the results for the 4,500 annual dwelling unit cap are reported. Superdistricts 1 through 7 fall within the City of San Diego, and superdistricts 8 through 10 and category 11 encompass the remainder of San Diego County. Within the city, we forecast that employment will increase by at least 20,000 jobs in five of the seven superdistricts. Job increases will be greatest in the I-15 Corridor, followed by the Northeast Central area, the Northwest Central Area, Southwest Central area, and the I-5 Corridor. Employment growth will be much more moderate in the Southeast Central area, while the South Bay area will add fewer than 1,000 new jobs. Because the "feedback" effects of the proposed dwelling unit caps on total employment are so small, the likely effects of the caps on the spatial arrangement of employment growth will be negligible. The proposed caps would have a minimal effect on the spatial distribution of job growth.

Table 5-3 presents the various forecasts in percentage form. Note that regardless of which growth scenario (High vs. Moderate) is considered, the proposed caps would have no effect on the distribution of job growth.

Table 5-4 presents projected job growth rates for the 1986-90 and 1986-95 periods by superdistrict. Under the High Growth scenario, we forecast that, countywide, total jobs will increase by approximately 157,000 (36.4 percent) between 1986 and 1995. The single largest

TABLE 5-2: PROJECTED JOBS BY SUPERDISTRICT: 1990 AND 1995
COMPARISON OF HIGH AND MODERATE GROWTH SCENARIOS WITH AND WITHOUT CAPS

			HIGH GROWTH SCENARIO				MODERATE GROWTH SCENARIO			
			No Caps		4500 Cap		No Caps		4500 Cap	
	Superdistrict	Total Jobs 1986	1990	1995	1990	1995	1990	1995	1990	1995
1	I-5 Corridor	30,976	39,003	52,221	38,967	52,029	38,208	45,336	38,175	45,327
2	I-15 Corridor	46,336	68,604	100,274	68,511	99,604	67,105	85,966	67,028	85,891
3	Northeast Central	82,959	95,646	118,230	95,520	117,594	93,703	103,326	93,587	103,300
4	Southeast Central	32,714	34,122	38,102	34,050	37,746	33,731	34,639	33,666	34,623
5	Southwest Central	126,786	133,511	151,493	133,309	150,437	131,719	136,052	131,538	135,997
6	Northwest Central	78,105	89,064	108,880	88,924	108,119	87,972	98,092	87,838	98,061
7	South Bay	5,446	5,687	6,313	5,679	6,267	5,619	5,730	5,611	5,728
8	North County	116,247	127,579	150,201	127,320	148,918	125,474	133,855	125,242	133,786
9	East County	59,838	66,024	78,912	65,847	78,084	64,559	69,044	64,393	69,022
10	South County	87,070	92,179	104,577	91,995	103,658	90,912	94,644	90,740	94,611
11	Other County	1,547	1,587	1,719	1,584	1,705	1,574	1,596	1,572	1,595
	Total San Diego County	668,024	753,006	910,922	751,706	904,161	740,576	808,280	739,390	807,941

Notes:
1. Does not include government workers or military personnel

Source: CREUE

TABLE 5-3: SUPERDISTRICT JOB SHARES: 1990 AND 1995
COMPARISON OF HIGH AND MODERATE GROWTH SCENARIOS WITH AND WITHOUT CAPS

		Total Jobs	HIGH GROWTH SCENARIO				MODERATE GROWTH SCENARIO			
			No Caps		4500 Cap		No Caps		4500 Cap	
	Superdistrict	1986	1990	1995	1990	1995	1990	1995	1990	1995
1	I-5 Corridor	4.6%	5.2%	5.7%	5.2%	5.8%	5.2%	5.6%	5.2%	5.6%
2	I-15 Corridor	6.9%	9.1%	11.0%	9.1%	11.0%	9.1%	10.6%	9.1%	10.6%
3	Northeast Central	12.4%	12.7%	13.0%	12.7%	13.0%	12.7%	12.8%	12.7%	12.8%
4	Southeast Central	4.9%	4.5%	4.2%	4.5%	4.2%	4.6%	4.3%	4.6%	4.3%
5	Southwest Central	19.0%	17.7%	16.6%	17.7%	16.6%	17.8%	16.8%	17.8%	16.8%
6	Northwest Central	11.7%	11.8%	12.0%	11.8%	12.0%	11.9%	12.1%	11.9%	12.1%
7	South Bay	0.8%	0.8%	0.7%	0.8%	0.7%	0.8%	0.7%	0.8%	0.7%
8	North County	17.4%	16.9%	16.5%	16.9%	16.5%	16.9%	16.6%	16.9%	16.6%
9	East County	9.0%	8.8%	8.7%	8.8%	8.6%	8.7%	8.5%	8.7%	8.5%
10	South County	13.0%	12.2%	11.5%	12.2%	11.5%	12.3%	11.7%	12.3%	11.7%
11		0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
	Total San Diego County	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes:
1. Does not include government workers or military personnel

Source: CREUE

TABLE 5-4: JOB GROWTH RATES FOR SAN DIEGO SUPERDISTRICTS: 1990 AND 1995
COMPARISON OF HIGH AND MODERATE GROWTH SCENARIOS WITH AND WITHOUT CAPS

		HIGH GROWTH SCENARIO				MODERATE GROWTH SCENARIO			
		No Caps		4500 Cap		No Caps		4500 Cap	
	Superdistrict	1986-90	1986-95	1986-90	1986-95	1986-90	1986-95	1986-90	1986-95
1	I-5 Corridor	25.9%	68.6%	25.8%	68.0%	23.3%	46.4%	23.2%	46.3%
2	I-15 Corridor	48.1%	116.4%	47.9%	115.0%	44.8%	85.5%	44.7%	85.4%
3	Northeast Central	15.3%	42.5%	15.1%	41.7%	13.0%	24.6%	12.8%	24.5%
4	Southeast Central	4.3%	16.5%	4.1%	15.4%	3.1%	5.9%	2.9%	5.8%
5	Southwest Central	5.3%	19.5%	5.1%	18.7%	3.9%	7.3%	3.7%	7.3%
6	Northwest Central	14.0%	39.4%	13.9%	38.4%	12.6%	25.6%	12.5%	25.6%
7	South Bay	4.4%	15.9%	4.3%	15.1%	3.2%	5.2%	3.0%	5.2%
8	North County	9.7%	29.2%	9.5%	28.1%	7.9%	15.1%	7.7%	15.1%
9	East County	10.3%	31.9%	10.0%	30.5%	7.9%	15.4%	7.6%	15.3%
10	South County	5.9%	20.1%	5.7%	19.1%	4.4%	8.7%	4.2%	8.7%
11	Other County	2.6%	11.1%	2.4%	10.2%	1.7%	3.1%	1.6%	3.1%
	Total San Diego County	12.7%	36.4%	12.5%	35.3%	10.9%	21.0%	10.7%	20.9%

Notes:
1. Does not include government workers or military personnel.

Source: CREUE

increase will occur in the I-15 Corridor, which we forecast will add more than 53,000 jobs (+116.4 percent) by 1995. Other areas in which job growth rates will exceed the county rate are the I-5 Corridor (+68.6 percent), the Northeast Central Area (+42.5 percent), and the Northwest Central area (+39.4 percent). Employment growth rates in the seven remaining Superdistricts (including the Southwest Central area, which subsumes downtown San Diego), will lag behind the County.

In summary, employment growth in San Diego County is suburbanizing, moving out of the traditional downtown core and north along Interstates 5 and 15. Fortunately, this pattern is not occurring at the expense of downtown San Diego. As in many other California metropolitan areas, jobs are now following people to the suburbs.

Housing

The proposed dwelling unit caps would not only limit new housing construction when compared with current growth rates, equally important, they would **re-allocate** or redistribute growth. Table 5-5 shows how the various allocations would differ from recent historical experience. Looking first at all housing units, single-family and multi-family units together, we note that 40.5 percent of completions between 1980 and 1986 occurred in suburban, or planned urbanizing Community Plan areas (the I-5 and I-15 Corridors, and the South Bay), while the remaining 59.5 occurred in urbanized CPAs. An average of 2800 units per year were completed in suburban CPAs while 4,100 units were completed in urban CPAs. Under the "suburban Emphasis" alternative, these percentages would change to 60 percent suburban/40 percent urban. Under the "urban Emphasis" alternative, the percentages would be 40 percent suburban/60 percent urban--a breakdown which more closely matches recent experience.

Table 5-5 shows what this would mean for the various superdistricts. Under the alternatives with an urban emphasis, superdistricts 5 (Southwest Central) and 7 (South Bay) would be allocated more annual dwelling unit growth than they received (on average) per year between 1980 and 1986, even under the most stringent 4,500 cap. Under the alternatives with

TABLE 5-5a: HOUSING CONSTRUCTION ACTIVITY UNDER CAP ALTERNATIVES (Assuming Full Allowable Buildout)

Superdistrict	Avg. Annual Completions 1980-86	1986 Total Completions	12000 Cap	8000 Cap		4500 Cap	
				Urban Emphasis	Suburban Emphasis	Urban Emphasis	Suburban Emphasis
1 I-5 Corridor	698	1,369	1,939	929	1,394	523	784
2 I-15 Corridor	1,890	3,187	2,997	1,436	2,155	808	1,212
7 South Bay	207	749	1,740	839	1,251	469	704
Total Suburban	2,795	5,305	6,676	3,204	4,800	1,800	2,700
3 Northeast Central	411	232	654	590	393	332	221
4 Southeast Central	1,985	2,394	1,036	934	622	525	350
5 Southwest Central	704	1,908	1,970	1,776	1,184	999	666
6 Northwest Central	1,002	833	1,665	1,501	1,000	844	563
Total Urban	4,102	5,367	5,325	4,801	3,199	2,700	1,800
Total City	6,897	10,672	12,001	8,005	7,999	4,500	4,500

TABLE 5-5b: CAP ALTERNATIVES AS SHARE OF 1980-86 AVERAGE ANNUAL COMPLETIONS

Superdistricts	Avg. Annual Completions 1980-86	Total Completions 1986	12000 Cap	8000 Cap		4500 Cap	
				Urban Emphasis	Suburban Emphasis	Urban Emphasis	Suburban Emphasis
1 I-5 Corridor	698	1,369	277.8%	133.1%	199.7%	74.9%	112.3%
2 I-15 Corridor	1,890	3,187	158.6%	76.0%	114.0%	42.8%	64.1%
7 South Bay	207	749	840.6%	405.3%	604.3%	226.6%	340.1%
Total Suburban	2,795	5,305	238.9%	114.6%	171.7%	64.4%	96.6%
3 Northeast Central	411	232	159.1%	143.6%	95.6%	80.8%	53.8%
4 Southeast Central	1,985	2,394	52.2%	47.1%	31.3%	26.4%	17.6%
5 Southwest Central	704	1,908	279.8%	252.3%	168.2%	141.9%	94.6%
6 Northwest Central	1,002	833	166.2%	149.8%	99.8%	84.2%	56.2%
Total Urban	4,102	5,367	129.8%	117.0%	78.0%	65.8%	43.9%
Total City	6,897	10,672	174.0%	116.1%	116.0%	65.2%	65.2%

Note: The above tables are based on the remaining plan capacity proportions.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

a suburban emphasis, superdistricts 1 (I-5) and 7 (South Bay) would be over-allocated new housing units relative to their performance during the early 1980s.

It is important to remember than the estimates shown in Table 5-5 are numerical allocations made according to the various dwelling unit cap alternatives, and not necessarily market outcomes. That is, in a market situation, developers might build out to their allocations in some superdistricts, but, because of a lack of perceived demand, underbuild their allocations in other superdistricts.

In looking at the distributional effects of the caps we consider all three employment growth scenarios: high, moderate, and low. As noted in Chapter 4, the amount of housing built in San Diego, and thus the distributional effects of the proposed caps, will ultimately depend more on the overall growth of the economy, than on particular policies undertaken by San Diego.

Tables 5-6 and 5-7 illustrate this point. Consider the I-15 Corridor. As of 1986, the I-15 Corridor included 4.7 percent of county dwelling units. Under conditions of low economic growth, we forecast that the I-15 Corridor will include 5.7 percent of the county's housing stock by 1995. Under conditions of high economic growth, the I-15 Corridor's 1995 share of county housing stock would rise to 6.2 percent. At the opposite extreme, we forecast that the Northwest Central area's share of county housing is going to decline from its 1986 level of 11.8 percent, to 11.2 percent in 1995 under conditions of lower economic growth, or to 10.8 percent under conditions of high economic growth.

Table 5-8, 5-9, and 5-10 present our cumulative dwelling unit growth allocations to superdistricts for the period between 1989 and 1995, under the conditions of high, moderate, and low economic growth, respectively. Under conditions of high economic growth (Table 5-8), and without the proposed caps, we estimate that 56,193 new units will be constructed in the City of San Diego between 1989 and 1995, with the largest growth shares going to the Southeast Central area (25 percent), and the I-15 Corridor (24.4 percent). In absolute terms, we forecast that the Southeast Central area and I-15 Corridor would receive 14,067 and 13,731

TABLE 5-6: DISTRIBUTION OF DWELLING UNITS FOR SAN DIEGO SUPERDISTRICTS
1985 AND 1995 BASELINE FORECASTS

	Superdistrict	1985 Base DU's	1985-1995 Change in DU's By Rate of Employment Growth			1995 Total DU's		
			Low	Moderate	High	Low	Moderate	High
1	I-5 Corridor	9,770	4,621	5,437	7,063	14,391	15,207	16,833
2	I-15 Corridor	34,322	15,271	18,123	23,938	49,593	52,445	58,260
3	Northeast Central	34,952	6,448	7,555	9,744	41,400	42,507	44,696
4	Southeast Central	91,794	16,917	19,856	25,709	108,711	111,650	117,503
5	Southwest Central	78,437	10,839	12,637	16,164	89,276	91,074	94,601
6	Northwest Central	86,327	10,152	11,857	15,222	96,479	98,184	101,549
7	South Bay	17,382	2,862	3,379	4,424	20,244	20,761	21,806
8	North County	162,987	33,740	39,937	54,519	196,727	202,924	217,506
9	East County	84,875	13,947	16,458	22,338	98,822	101,333	107,213
10	South County	129,839	18,466	21,701	29,200	148,305	151,540	159,039
	Subtotals:							
	City of San Diego:	352,984	67,110	78,844	102,264	420,094	431,828	455,248
	Rest of County:	377,701	66,153	78,096	106,057	443,854	455,797	483,758
	Total:	730,685	133,263	156,940	208,321	863,948	887,625	939,006

Source: CREUE forecasts and allocations of dwelling units.
Notes: 1985 base from SANDAG Series 7 Draft estimates. Totals by Superdistrict may not add up to forecasts of housing stock, which were based on Department of Finance housing stock estimates.

TABLE 5-7: PERCENTAGE OF DWELLING UNITS FOR SAN DIEGO SUPERDISTRICTS
1985 AND 1995 BASELINE FORECASTS

	Superdistrict	1985 Base DU's	1985-1995 Change in DU's By Rate of Employment Growth			1995 Total DU's		
			Low	Moderate	High	Low	Moderate	High
1	I-5 Corridor	1.3%	3.5%	3.5%	3.4%	1.7%	1.7%	1.8%
2	I-15 Corridor	4.7%	11.5%	11.5%	11.5%	5.7%	5.9%	6.2%
3	Northeast Central	4.8%	4.8%	4.8%	4.7%	4.8%	4.8%	4.8%
4	Southeast Central	12.6%	12.7%	12.7%	12.3%	12.6%	12.6%	12.5%
5	Southwest Central	10.7%	8.1%	8.1%	7.8%	10.3%	10.3%	10.1%
6	Northwest Central	11.8%	7.6%	7.6%	7.3%	11.2%	11.1%	10.8%
7	South Bay	2.4%	2.1%	2.2%	2.1%	2.3%	2.3%	2.3%
8	North County	22.3%	25.3%	25.4%	26.2%	22.8%	22.9%	23.2%
9	East County	11.6%	10.5%	10.5%	10.7%	11.4%	11.4%	11.4%
10	South County	17.8%	13.9%	13.8%	14.0%	17.2%	17.1%	16.9%
	Subtotals:							
	City of San Diego:	48.3%	50.4%	50.2%	49.1%	48.6%	48.6%	48.5%
	Rest of County:	51.7%	49.6%	49.8%	50.9%	51.4%	51.4%	51.5%
	Total:	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: CREUE forecasts and allocations of dwelling units.

additional units between 1989 and 1995. Smaller increments of housing growth would go to the Southwest Central, Northwest Central and Northeast Central areas.

In considering the effects of the caps, below, we will limit our discussion to the case of the 4,500 cap, as it is the most severe (Although the allocations under the 8,000 cap are also reported in Tables 5-8, 5-9, and 5-10). Looking first at the urban scenario (60 percent of new units in superdistricts 3,4,5, and 6; 40 percent in superdistricts 1,2, and 7), and comparing the constrained allocations to the unconstrained baseline, we note that new home construction over the 1989-1995 period would decline in all San Diego superdistricts except for the South Bay. In some cases (the I-15 Corridor, the Southeast Central area, and the Northeast Central area), these declines would be precipitous. In other superdistricts (e.g., the I-5 Corridor), the declines would be much more modest.

In the case of the suburban scenario (40 percent of new housing units in superdistricts 3, 4, 5, and 6; 60 percent in superdistricts 1, 2, and 7), new home construction between 1989 and 1995 would increase relative to the uncapped baseline in both the I-5 Corridor and the South Bay. New home construction would be sharply constrained in all other superdistricts, but especially in the Northeast Central and Southeast Central areas.

As Table 5-9 indicates, under conditions of moderate economic growth, the annual cap of 8,000 dwelling units a year would not constrain or re-allocate new homes. On the other hand, an annual cap of 4,500 units would sharply re-allocate housing unit construction when compared to the uncapped baseline. Under the urban scenario, additional growth would be allocated to the I-15 Corridor, the Southwest Central area, the Northwest Central Area, and the South Bay areas, relative to the uncapped baseline. Under the suburban scenario, new housing units would be "over-allocated" to the I-5 Corridor and the South Bay superdistricts, and "under-allocated" to the other superdistricts. Similar patterns of over- and under-allocation emerge under conditions of lower-than-expected economic growth (Table 5-10).

TABLE 5-8: PROJECTED HOUSING UNIT CONSTRUCTION FOR SAN DIEGO SUPERDISTRICTS: 1989-95; COMPARISON OF HIGH BASELINE FORECAST WITH 8000 AND 4500 DWELLING UNIT CAPS

			8000 DU/YEAR CAP				4500 DU/YEAR CAP			
			Urban Emphasis		Suburban Emphasis		Urban Emphasis		Suburban Emphasis	
	Superdistrict	Baseline Forecast 1989-95	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline
1	I-5 Corridor	3,897	4,810	123.4%	7,019	180.1%	3,138	80.5%	4,704	120.7%
2	I-15 Corridor	13,731	8,616	62.7%	12,154	88.5%	4,848	35.3%	7,272	53.0%
3	Northeast Central	5,283	3,540	67.0%	2,358	44.6%	1,992	37.7%	1,326	25.1%
4	Southeast Central	14,067	5,604	39.8%	3,732	26.5%	3,150	22.4%	2,100	14.9%
5	Southwest Central	8,578	9,528	111.1%	7,042	82.1%	5,994	69.9%	3,996	46.6%
6	Northwest Central	8,151	8,228	100.9%	5,998	73.6%	5,064	62.1%	3,378	41.4%
7	South Bay	2,486	4,047	162.8%	6,070	244.2%	2,814	113.2%	4,224	169.9%
	City of San Diego	56,193	44,373	79.0%	44,373	79.0%	27,000	48.0%	27,000	48.0%

Notes:

1. Includes single-family and multi-family units; excludes mobile homes

Source: CREUE

TABLE 5-9: PROJECTED HOUSING UNIT CONSTRUCTION FOR SAN DIEGO SUPERDISTRICTS: 1989-95; COMPARISON OF MODERATE GROWTH BASELINE FORECAST WITH 8000 AND 4500 DWELLING UNIT CAPS

			8000 DU/YEAR CAP				4500 DU/YEAR CAP			
			Urban Emphasis		Suburban Emphasis		Urban Emphasis		Suburban Emphasis	
	Superdistrict	Baseline Forecast 1989-95	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline
1	I-5 Corridor	2,181	Caps are not a constraint				3,016	138.3%	4,464	204.7%
2	I-15 Corridor	7,623	Caps are not a constraint				4,848	63.6%	7,190	94.3%
3	Northeast Central	2,966	Caps are not a constraint				1,992	67.2%	1,326	44.7%
4	Southeast Central	7,879	Caps are not a constraint				3,150	40.0%	2,100	26.7%
5	Southwest Central	4,833	Caps are not a constraint				5,811	120.2%	3,996	82.7%
6	Northwest Central	4,583	Caps are not a constraint				4,946	107.9%	3,378	73.7%
7	South Bay	1,385	Caps are not a constraint				2,655	191.7%	3,964	286.2%
	City of San Diego	31,450	Caps are not a constraint				26,418	84.0%	26,418	84.0%

Notes:

1. Includes single-family and multi-family units; excludes mobile homes

Source: CREUE

TABLE 5-10: PROJECTED HOUSING UNIT CONSTRUCTION FOR SAN DIEGO SUPERDISTRICTS: 1989-95;
COMPARISON OF LOW GROWTH BASELINE FORECAST WITH 8000 AND 4500 DWELLING UNIT CAPS

			8000 DU/YEAR CAP				4500 DU/YEAR CAP			
			Urban Emphasis		Suburban Emphasi		Urban Emphasis		Suburban Emphasis	
	Superdistrict	Baseline Forecast 1989-95	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline	1989-95	Percent of Baseline
1	I-5 Corridor	1,451	Caps are not a constraint				1,857	128.0%	2,642	182.1%
2	I-15 Corridor	5,048	Caps are not a constraint				4,714	93.4%	5,684	112.6%
3	Northeast Central	1,980	Caps are not a constraint				1,832	92.5%	1,326	67.0%
4	Southeast Central	5,256	Caps are not a constraint				3,150	59.9%	2,100	40.0%
5	Southwest Central	3,241	Caps are not a constraint				3,793	117.0%	3,299	101.8%
6	Northwest Central	3,070	Caps are not a constraint				3,419	111.4%	2,974	96.9%
7	South Bay	921	Caps are not a constraint				1,432	155.5%	2,170	235.6%
	City of San Diego	20,967	Caps are not a constraint				20,197	96.3%	20,195	96.3%

Notes:

1. Includes single-family and multi-family units; excludes mobile homes

Source: CREUE

D. Spillover Effects

Thus far we have assumed that new housing units that would be constrained by the proposed caps from being built in one part of the city will automatically be re-allocated to other parts of the city. We do not allow such re-allocations to occur between the city, and other municipalities, or unincorporated areas of San Diego County. It should be noted, as well, that intra-city re-allocations of housing units would not necessarily occur automatically.

Table 5-11 summarizes how the proposed caps might create re-allocations, or spillovers, within the city. As above, the magnitude of the spillover effect varies with the level of economic growth, the choice of cap, and whether the urban or suburban emphasis is used. We concern ourselves here only with positive housing unit spillovers.

· Consider the high-growth/4,500 dwelling unit cap/suburban emphasis alternative. Under this alternative, an additional 800 or so dwelling units would be presumed to spillover into the I-5 Corridor between 1989 and 1995 (when compared with the baseline), while an additional 1,800 units would spill-over into the South Bay area. Under the high-growth/4,500 dwelling unit cap/urban emphasis alternative, the only spillover effects would be in the South Bay area. Under the high growth/8,000 dwelling unit cap/urban emphasis alternative, the Southwest Central area, in addition to the I-5 Corridor and South Bay area would receive some spillover housing demand.

The implications of this analysis are important. To the extent that the proposed caps do serve to re-allocate projected housing growth, rather than just limit it, they might have substantial growth impacts in currently developed superdistricts and CPAs. If caps are pursued, extreme care must be taken in directing and accommodated spillover demand.

E. Balanced Communities

The concept of a balanced community, although highly attractive, remains difficult to operationalize. For the purposes of this analysis, we have taken "balance" to mean a general match between housing and job opportunities within superdistricts. At this point, we have not

TABLE 5-11: ESTIMATE OF 1995 HOUSING UNIT SPILLOVERS BY SAN DIEGO SUPERDISTRICT
Comparison of High and Moderate Baseline Forecasts with 4500 Dwelling Unit Caps

		High Growth Baseline Forecast	4500 DU/YEAR CAP				Moderate Growth Baseline Forecast	4500 DU/YEAR CAP			
			Urban Allocation		Suburban Allocation			Urban Allocation		Suburban Allocation	
	Superdistrict	1989-95 Forecast	1989-95 Forecast	Spillover (+/-)	1989-95 Forecast	Spillover (+/-)	1989-95 Forecast	1989-95 Forecast	Spillover (+/-)	1989-95 Forecast	Spillover (+/-)
1	I-5 Corridor	3,897	3,138	(759)	4,704	807	2,181	3,016	835	4,464	2,283
2	I-15 Corridor	13,731	4,848	(8,883)	7,272	(6,459)	7,623	4,848	(2,775)	7,190	(433)
3	Northeast Central	5,283	1,992	(3,291)	1,326	(3,957)	2,966	1,992	(974)	1,326	(1,640)
4	Southeast Central	14,067	3,150	(10,917)	2,100	(11,967)	7,879	3,150	(4,729)	2,100	(5,779)
5	Southwest Central	8,578	5,994	(2,584)	3,996	(4,582)	4,833	5,811	978	3,996	(837)
6	Northwest Central	8,151	5,064	(3,087)	3,378	(4,773)	4,583	4,946	363	3,378	(1,205)
7	South Bay	2,486	2,814	328	4,224	1,738	1,385	2,655	1,270	3,964	2,579
	City of San Diego	56,193	27,000	(29,193)	27,000	(29,193)	31,450	26,418	(5,032)	26,418	(5,032)

Source: CREUE

been able to incorporate dimensions of housing price or job type, into our analysis; we are considering only absolute supplies of jobs and housing.

In 1986, the City of San Diego included 1.14 jobs for every 1 housing unit; jobs slightly outnumbered housing units in the I-15 Corridor, moderately outnumbered housing units in the Southwest Central area (which includes downtown), and significantly outnumbered housing units in the I-15 Corridor. Presumably, although not necessarily, workers who lived in these areas experienced shorter commutes. By contrast, housing units outnumbered jobs in the Northwest Central area, Southeast Central area, and South Bay areas. Presumably, workers who lived in these areas faced longer commutes.

As Table 5-12 indicates, the proposed caps would not substantially alter these ratios, regardless of the level of economic growth. Superdistricts which are currently "under-balanced" with jobs will generally remain so. Similarly, superdistricts which currently have an excess of jobs will continue to have an excess of jobs well into the future. The one exception to this is the I-15 Corridor, which we forecast will add new jobs at a faster rate than new homes; exactly how much faster depends on several factors, including the proposed caps.

Behind these findings is the simple fact that projected jobs and housing growth increments through 1995, although sizeable, are still quite small relative to the existing jobs and housing base. Thus, none of the land use policies currently being considered will drastically alter the balance of jobs and housing within superdistricts. They may, however, have much more notable effects at the CPA level. It is also important to recognize that at its heart, the concept of community balance refers to providing a variety of housing, employment, shopping, and recreational choices.

E. Key Assumptions and Caveats

These forecasts and findings rest on a number of assumptions which require reiterating:

- The major determinants and forces behind the spatial distribution of employment and housing growth will not change in nature or magnitude between the baseline period of

TABLE 5-12: JOBS TO DWELLING UNIT RATIOS FOR SAN DIEGO SUPERDISTRICTS: 1986 AND 1995

Superdistrict	1986 Ratio	HIGH GROWTH SCENARIO			MODERATE GROWTH SCENARIO		
			4500 DU/year Cap			4500 DU/year Cap	
		Baseline	Urban Emphasis	Suburban Emphasis	Baseline	Urban Emphasis	Suburban Emphasis
1 I-5 Corridor	3.17	3.10	3.24	2.95	3.00	2.84	2.61
2 I-15 Corridor	1.35	1.72	2.02	1.92	1.65	1.74	1.66
3 Northeast Central	2.37	2.65	2.84	2.89	2.44	2.49	2.54
4 Southeast Central	0.36	0.32	0.35	0.36	0.31	0.32	0.33
5 Southwest Central	1.62	1.60	1.63	1.67	1.50	1.48	1.51
6 Northwest Central	0.90	1.07	1.10	1.12	1.00	1.00	1.01
7 South Bay	0.31	0.29	0.28	0.27	0.28	0.26	0.25
City of San Diego	1.14	1.26	1.34	1.34	1.18	1.20	1.20

Notes:
1. Constructed from jobs and housing forecasts developed by CREUE

Source: CREUE

1980-1986, and the forecast period between 1986 and 1995. These forces are promoting the decentralization of job growth from San Diego's downtown and central core, to peripheral business and industrial parks, most notably those in the I-15 Corridor.

- The distribution of office and industrial space, by Community Plan Area, will not change between 1986 and 1995, although the absolute magnitude of available space may change. By itself, new office or industrial space will not attract new development. This assumption could bias some results for the South Bay, however. If the South Bay begins to receive substantial shares of new industrial space, it may receive a larger share of non-high tech manufacturing jobs than are forecasted here.

- Municipalities outside the City of San Diego will not accept any "spillover" units, which, by virtue of the proposed caps, cannot or will not be built within the city.

- The spillover effects of the various dwelling unit caps depend on the cap levels themselves, and on the re-allocation of new units to suburban and urban areas. Different re-allocations would, quite naturally, produce different types of spillover effects.

CHAPTER 6: OTHER ISSUES

A. No Growth Alternative

Recently, the issue of zero residential growth has come up. Although the term "no-growth" or "zero-growth" has not been clearly defined, we take it to mean that the city would establish a moratorium (of unknown duration) on the issuance of additional building permits for all, or selected areas of the city.

A precise analysis of the long-run economic impacts of a zero-growth alternative is beyond the capabilities of our models. We can, however, suggest a few possible outcomes:

- The no-growth alternative, if implemented by the City of San Diego would not stop growth. Economic and job growth (which would not otherwise be controlled) would continue to be attracted to San Diego. Housing growth would be pushed further out to the periphery, in all likelihood, increasing traffic and congestion levels.

- Housing prices would rise throughout San Diego, as the sellers of existing homes attempted to extract the maximum profit. Affordability would fall sharply throughout the city, particularly in low and moderate-income areas.

- Housing prices would also rise outside the city, as homesellers adjusted their prices upward to keep pace with home prices in the city. How high housing prices would rise would depend on how other municipalities in San Diego County reacted to the city's imposition of a residential moratorium.

- Households would start "doubling-up," particularly in established neighborhoods. Multi-family apartment rents would subsequently rise.

- In the longer-term, some number of potential in-migrants would be discouraged from relocating to San Diego by high housing prices and rents. Thus, the no-residential-growth option would probably have some long-term effect on San Diego's population. We emphasize however, that the actual effect of such an option on population and employment growth would probably be much smaller than the proponents of this option realize.

- Depending on how often households move (and reassessment practices), the zero-growth option **might** (over the long-run) actually enhance the fiscal base of the community. This is because housing prices (and thus the revenue base) would rise, while the costs of extending some services might be contained.

- This would be counterbalanced by the fact that much of the new infrastructure currently being constructed in the city is being provided by developers. If development stopped, the ability of many Community Plan Areas to fund scheduled improvements would be seriously compromised.

Again, we wish to emphasize that these are informed guesses and not quantitative forecasts. More important than the question of the economic impacts of the no-growth alternative, is the issue of whether such ordinances would be constitutional.

B. Development in Tijuana

Our analyses does not assess the effects of population and economic change in Tijuana on the growth of San Diego; nor do we attempt to forecast future growth in Tijuana. Although clearly of relevance to San Diego's economy, Tijuana is located in a different sovereign state and is unlikely to change its development significantly based on different policies enacted in San Diego. We can, however, make some comments on how Tijuana effects may show up indirectly in the analysis.

Tijuana's growth could affect San Diego in several ways. These include: (1) providing a customer base for merchants in the region; (2) providing an inexpensive (legal and undocumented) labor force for the San Diego economy, and; (3) through cross border interrelationships developed through the twin-plant program.

Tijuana has grown very rapidly in the past decade. To the extent that this growth has increased the customer base of San Diego's economy, these effects may already be estimated in our long term forecasts of growth in San Diego. The labor force effects are more difficult to estimate, primarily because the impacts of new immigration laws remain to be seen.

The twin plants program does appear to have attracted some plants to the San Diego region, particularly plants owned by foreign firms. However, it has not yet provided major increases in employment, and may never contribute substantially to San Diego's employment base. The twin plants locating on the United States side of the border tend to be the capital intensive, rather than labor intensive, thus adding only small numbers of jobs to San Diego's employment base.

The more critical issues arising from Tijuana's growth are likely to be the environmental effects of the growth on the air basin and sewage overflows. Separate, international agreements on environmental controls would be needed to address these concerns.

C. Amenity Premiums and Costs

Without a doubt, much of San Diego's attractiveness to growth (both residential and economic) is a result of the area's outstanding mixture of weather, topography, coastal views and locations, and other natural amenities. As noted in Chapter 3, home prices tend to be much higher in places with higher levels of natural amenities. To the extent that the experiential quality of such amenities is (further) reduced by continued growth, the welfare of some groups of the population may be reduced. Moreover, in some places with extreme disamenities (high levels of noise and traffic congestion, for example), there may actually be some feedback effect through the market, causing home prices and rents to be lower than they would otherwise be. Finally, some types of disamenities (reduced environmental quality) may ultimately reduce San Diego's attractiveness to tourists.

Unfortunately, it is beyond the methodological scope of our analysis to precisely quantify these amenity costs and premiums. Survey techniques do exist, however, to identify these effects. Such techniques are beyond simple survey research and involve the identification of specific tradeoffs ("contingent valuation").

D. Racial Income and Job Disparities

Real and substantial disparities exist within San Diego's population with respect to income, job opportunities, and neighborhood/housing quality. Moreover, such disparities tend to be along racial lines.

It is important to realize that growth, by itself, is neither the cause of such disparities, nor likely to be the antidote. "Unbalanced growth," however, can exacerbate such disparities.

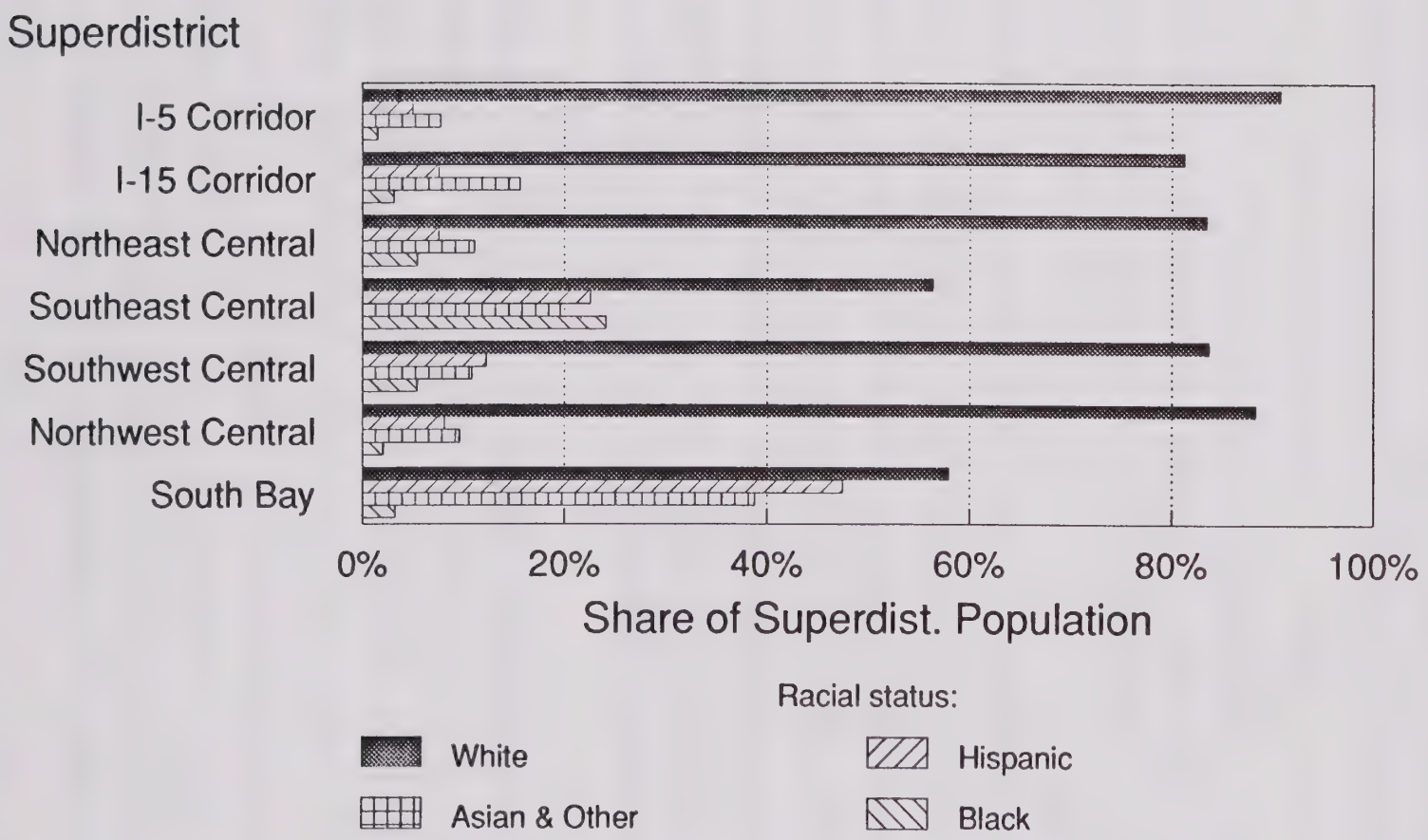
Imbalances exist across economic sectors and across space.

We forecast that most of the new jobs created during the next 10 years will be in suburban locations (Chapter 5). Such locations are already less accessible to black and Hispanic workers--who tend to live in older, established areas--than white and Asian workers (see Figure 6-1). Without strong efforts to redress this imbalance--by opening up suburban housing to minority residents, by providing better transportation for poorer, central area residents, and by actively encouraging some types of neighborhood economic development--it is likely to worsen.

The relative allocations of dwelling units to suburban versus urban areas, or according to remaining capacity, may also affect minorities differentially. For example, the Southeast Central area, with high shares of blacks, Hispanics and Asians would lose housing growth under most alternatives, and probably suffer increased housing prices. The South Bay, also heavily minority, would receive allocations under suburban cap alternatives far in excess of its natural market share of housing growth. However, this would improve minority housing opportunities only if construction actually increases, and if the units built are in the appropriate price range.

There are also imbalances in the types of jobs being created. Job opportunities for blacks and Hispanics in two of San Diego's leading industrial sectors--high technology, and business-serving firms--have historically been poor. And while minority job opportunities are available in another of San Diego's leading sectors--tourism--such opportunities are often at the low end of the pay-scale. This problem is of national concern, and is certainly not limited to San Diego. Dwelling unit caps have very minimal differential effects on job opportunities for minority workers. Small job losses in natural resources sectors could impact Hispanics more than others, because of their disproportionate representation in this sector, while construction job losses would be felt most by whites and Hispanics. The rate of growth may have more significant implications for minority workers. For example, higher rates of growth produce a

Race and Ethnic Distribution by Superdistrict in City of San Diego 1980



Source: 1980 Census.

greater share of production jobs, where minority workers have historically found high-wage employment.

Overall, our forecasts show that without substantial efforts given to better minority job training and skill-matching, the problem may well get worse. To the extent that growth creates new wealth, it also offers some opportunities for constructively addressing these concerns. As always, the key is in structuring workable and implementable programs which focus on specific problems and issues.

E. Fiscal Implications

The fiscal implications of growth are addressed in detail in other reports by the city. However, the analysis provided here suggests several conclusions and concerns:

- o because caps reduce housing growth but not population growth, the likely impacts of caps under high growth will be to reduce revenues from building fees without reducing overall costs of growth.
- o In the longer run, higher housing prices caused by caps may help to offset the property tax losses associated with fewer housing units
- o The location of new growth can have significant effects on the fiscal situation in several ways. If home construction is limited to lower priced areas, housing affordability will be improved, but some losses will occur in property tax revenues. If home construction occurs in suburban areas close to jobs, congestion may be reduced while revenues may be higher (if fee differentials continue to exist between suburban and urban places).
- o Concentration of new construction in urban areas may provide the opportunity to extract further fees for overtaxed infrastructure but also will substantially increase demand on that infrastructure

The net fiscal impacts of dwelling unit caps cannot be determined from this portion of the analysis. However, it is certain that caps alone will not address many of the current fiscal issues related to existing and future infrastructure capacity in the city.

F. Regulating Job Growth

The basic reason why residential dwelling unit caps would not greatly affect San Diego's rate of growth is that development in the City and County of San Diego is ultimately being

driven by **job** growth, not housing growth. Unfortunately, as many cities have found, it is often difficult to regulate--either positively or negatively--the rate of job growth. It is possible, however, to control the location of employment growth, and the responsibilities of office and industrial developers. Assuming such controls were desirable, how might they be implemented?

- Restrictions on Floor Area Ratios: this would reduce the height of selected buildings, and ultimately the size of the workforce in a particular location.
- Requirements for developer provision of/contributions to offsite transportation improvements which would speed the flow of work-related trips. Such improvements could be on the supply side (e.g., improved arterial facilities and circulation) or the demand-side (e.g., van and car-pooling, improved transit service).
- Cooperative planning of future suburban commercial/office centers by public planners and private developers.
- Encouragement of redevelopment of some parcels to higher uses.

These measures are more effective in regulating the location and some of the impacts of job growth, rather than in reducing the rate of growth.

G. Controlled Job Growth

The issue of the impacts of direct controls on job growth has been raised. This study has made no attempt to identify what types of measures would produce lower job growth, and we believe the development of such measures would be very difficult. However, a comparison of the Low and High Employment Growth forecasts for the region gives the sense of how the region would fare under if appropriate employment growth controls could be enacted. Under slow employment growth, housing prices would inflate more slowly and real per capita income would stay almost flat, rather than rising as it does with strong employment growth. The industrial and job mix would also experience small changes between the Low and High Growth levels. In particular, manufacturing production jobs will be higher in number and proportion of all jobs with strong employment growth. The share of total jobs which the retail sector and service jobs represent will be higher under slow employment growth.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The types of dwelling unit caps being considered by CACGD and the City of San Diego will not have substantial countywide effects on the San Diego economy, and will have significant effects on the housing market only if economic growth is strong. Assuming a high rate of economic growth, and comparing the most stringent of the proposed caps (4,500 dwelling units permitted annually) against a no cap scenario, we find that countywide housing prices would rise 2.5 percent in 1995, that average rents would rise 1.2 percent in 1995, that per capita incomes would fall by 2.1 percent by 1995, and that less than 1 percent fewer jobs would be created by 1995 (Chapter 4). Under a more moderate rate of economic growth, the effects of the proposed caps on the county as a whole would be even smaller.

These results should not be very surprising. Recent years have seen much of the San Diego County's residential growth occurring in other municipalities and in unincorporated areas, not in the City of San Diego. Thus, the effect of the proposed caps on the larger housing market would be moderated by what happens in the other cities and unincorporated parts of the county and by shifts in the overall growth rate of the employment base. In some years, for example, we forecast that, countywide, even the most stringent proposed dwelling unit cap (4,500 units per year within the city of San Diego) would reduce 1989 countywide building permits by as few as 2,000 units.

This is not to say that the proposed caps would have no effect. Rather, the impact of the caps would differ by area. For example, in the currently fast-growing I-15 Corridor, we estimate that the first year effects of an annual cap of 4,500 dwelling units would be to increase housing prices by approximately 5 percent (Chapter 3). In the longer term, areas having continuous restrictions on housing construction such as the I-15 corridor and Southeast San Diego, would bear a larger share of housing price increases.

Curiously, if the effect of the proposed caps were to **reallocate** residential growth into currently slow-growing areas, the caps might have the effect of forcing down housing prices in some areas. This will only occur however, if housing production in these areas could be forced to rise above the non-cap market level, and if the new homes built are of similar quality to the existing housing stock. But this theoretical housing price effect must be balanced against the effects such a reallocation of growth would have on public service levels in existing urban neighborhoods, and against uneven spillovers of population from growth-restricted areas to growth-enabled areas.

Our forecasts indicate that the proposed caps would have little effect on overall population growth and employment growth. As such, they raise the issue of whether the proposed caps would address the types of quality-of-life concerns which are of fundamental importance to many San Diegans:

- We believe that the proposed dwelling unit caps would not reduce the level of automobile traffic or congestion on San Diego's freeways below what it would otherwise by with no caps. Moreover, depending on the nature and extent of housing spillovers, traffic congestion could worsen under the caps.

- By pushing growth into some urbanized communities, the proposed caps might worsen some local traffic and parking conditions.

- By reducing housing construction in suburban areas, where developers are already providing needed public infrastructure, the proposed dwelling unit caps might worsen the city's fiscal problems. By themselves, the caps do little to redress current fiscal inequities across urbanized and planned urbanizing communities. And while rising housing prices (due to the imposition of caps) may offer the potential for greater public revenues such changes are more often regressive than progressive.

- Slowing residential growth will do little to protect San Diego's sensitive lands, or preserve open space. Without specific protection measures, valued open space can be as easily developed under residential caps as without.

- The caps will do little to provide jobs and housing opportunities for low and moderate income households. In fact, under some spillover scenarios, housing prices and rents in existing low/moderate income neighborhoods might rise, while job opportunities move to the suburbs.

To summarize, we believe that the proposed dwelling unit caps would generate economic and social costs to all San Diegans without providing any equivalent benefit. A more

productive direction would be to move the discussion away from the issue of caps, and toward concrete means for solving the city's real growth problems.

B. Policy Alternatives

The report and analysis focuses largely on dwelling unit caps because these have become the focus of many discussions over growth control. In fact, many other alternatives exist for addressing growth issues. Some additional policy alternatives to address growth are listed below. Many of these ideas are already under consideration by the city, county, SANDAG, environmental groups, and/or business groups in the San Diego area.

1. CACGD and the City of San Diego should work together to develop a plan for protecting sensitive lands from urban development. Such an effort is already underway.

2. The City of San Diego, together with all other jurisdictions in the county, should establish a County Open Space District for the purposes of purchasing key open space areas, and protecting others from development. Examples of such efforts include the East Bay Regional Park District and the Mid-Peninsula Open Space District, both in the San Francisco Bay Area. As residential developers throughout California have found, open space enhances the marketability of their projects.

3. If some form of dwelling unit caps are approved by the city officials or the public, concrete steps must be taken to maintain and preserve housing affordability.

4. As part of the development review process, the developers of major commercial, industrial, and office projects should be required to undertake a transportation impact analysis to estimate the cumulative traffic and transportation impacts of their proposals.

Developers of projects which exceed pre-established threshold levels would be required to fund and participate in regional transportation management plans.

5. Working through SANDAG and LAFCO, municipalities in San Diego County should attempt to coordinate their individual growth policies so as to minimize inter-jurisdictional spillovers of housing and/or employment growth. Such coordination is becoming increasingly essential because of the real water and power supply constraints now projected for the early-to-mid 1990s.

6. The city should consider working with builders and employers to evaluate the impacts of major projects and business relocations. Where impact fees are considered appropriate, these fees should respond to the cumulative citywide effects as well as localized infrastructure needs.

7. The San Diego City Planning department should promote a greater degree of coordination and integration of Community Plans, particularly in the areas of office and commercial development; greater efforts must be made to steer new commercial projects into those locations having the requisite infrastructure.

8. If dwelling unit caps are imposed, they should be flexible. For example, residential developers might be allowed to "carry forward" unused permits from years in which the market under-performs the caps. And because of the potential for unwanted spillovers, caps should be implemented in a way that lets the market re-allocate housing units among areas of the city. Without such a market re-allocation mechanism, actual building levels might fall well below the caps, further increasing housing prices.

9. Existing subdivision requirements should be reviewed and if necessary amended to encourage developers to provide more usable forms of open space.

10. The City should undertake a meaningful city-wide, long-term Capital Improvements and Facilities Plan which includes planned and anticipated financing needs and mechanisms. Such a plan should rationalize the facilities plans put forth in the individual Community Area plans.

11. In consultation with SANDAG and other municipalities, the City should consider the planned designation and development of a system of arterial roadways designed to complement the region's freeways.

12. The City should encourage the permanent formation of business-oriented planning organizations (such as the Bay Area Council, or the Santa Clara County Manufacturers Association) to promote the orderly development of San Diego County.

C. Mitigation and Monitoring in the Long Run

Because of the political framework in which decisions will made, the direction for growth management likely to be chosen cannot be predicted. Whatever growth management policies are chosen, the city will need to track the effectiveness and the side effects over the long run. This report has given some indication as to how different measures are likely to affect the initial problems and the types of undesirable side effects that could emerge from different measures.

As a growth management program is implemented, ongoing monitoring of several factors may be useful. These include:

1. Traffic levels at critical intersections.
2. Public open space use levels.

3. Open space users' place of residence.
4. Air and water quality.
5. Capacity of sewer treatment plants and other key infrastructure facilities.
6. School capacity.
7. Housing prices.
8. Job growth and availability.
9. Unemployment levels.

If monitoring indicates that environmental problems are being adequately addressed by the growth management measures, but that social problems have arisen in terms of housing costs, job growth or unemployment, then the city may wish to design mitigation measures to preserve specific types of housing or job opportunities. For example, if dwelling unit caps are implemented, increased allocations could be offered for low or moderate priced developments. If some type of employment growth restrictions are imposed, they may need to be coupled with targetted job training programs for low income workers or with buisingess incentives to employers who hire and train local residents.

If monitoring indicates that the growth related problems themselves are not being resolved (e.g. traffic, open space use), then the particular growth management technique used may not be working adequately. For example, traffic congestion may continue to grow under dwelling unit caps because overall population and employment growth levels are not reduced and the distribution of development may shift. Under such conditions, alternative traffic management techniques would be needed, such as those mentioned above.

In general, the policy alternatives described earlier in this chapter offer a variety of means of addressing growth problems. Any successful growth management program will need to rely on a number of these policy approaches. Furthermore, the city will need to have the flexibility to adjust and adapt programs as conditions change.

THE IMPACTS OF RESIDENTIAL GROWTH CONTROLS ON SAN DIEGO'S HOUSING MARKET AND EMPLOYMENT BASE

TECHNICAL APPENDICES

APPENDIX A:

DWELLING UNIT CAP ALLOCATIONS BY SUPERDISTRICT

The proposed dwelling unit cap alternatives are specified only at the city level. The 8,000 and 4,500 units caps also have two versions according to emphasized urban/suburban alternatives. In discussions with city staff and the CACGD steering committee it was decided to distribute these total caps among the urban and suburban superdistricts to future capacity. For this reason, the proportions from the 'Remaining Residential Plan Capacity' study by the Growth Program Workshop Group of City of San Diego, were used to come up with the cap allocations by superdistrict that are shown in Table A-1.

In the early years following imposition of dwelling unit caps, market allocations as outcomes of developers' and buyers' decisions, may not reflect these exact allocations. For instance, underproduction may occur in superdistrict 7 (South Bay) where during the 1980-86 period total housing production averaged only 207 units. Even the lowest cap allocation for the South Bay is much higher than the historic construction trends there. However, plan capacity figures are likely to force the building activity to catch up with the allocations presented here, in a few years. Certainly, some adjustment in proportions of building activity is likely because under the present construction trends, the remaining plan capacities of most of the superdistricts will be entirely exhausted in approximately 10 years.

A comparison of historic completion trends by superdistrict with the dwelling unit cap allocations reveals that cap alternatives with 12,000 and 8,000 units/year, in many instances, do not represent real restrictions on building activity citywide. Only the 4,500 cap significantly reduces building activity from averages of the 1980s. A 4,500 cap curtails significant amounts of housing production, especially in superdistricts where most of the construction of new units occur in the present day.

Caps were proposed for total dwelling units only. However, because our short run analysis (Chapter 3) focuses only on single family home sales, we needed to assess the impacts

TABLE A-1: AVERAGE ANNUAL HOUSING COMPLETIONS DURING THE 1980-86 PERIOD AND CAP ALLOCATIONS FOR TOTAL HOUSING UNITS BY SUPERDISTRICT

Superdistricts	Avg. Annual Completions 1980-86	1986 Total Completions	12000 Cap	8000 Cap Urban Emphasis	8000 Cap Suburban Emphasis	4500 Cap Urban Emphasis	4500 Cap Suburban Emphasis
TOTAL UNITS							
SD1: I-5 Corridor	698	1,369	1,939	929	1,394	523	784
SD2: I-15 Corridor	1,890	3,187	2,997	1,436	2,155	808	1,212
SD7: South Bay	207	749	1,740	839	1,251	469	704
Total Suburban	2,795	5,305	6,676	3,204	4,800	1,800	2,700
SD3: N.E. Central	411	232	654	590	393	332	221
SD4: S.E. Central	1,985	2,394	1,036	934	622	525	350
SD5: S.W. Central	704	1,908	1,970	1,776	1,184	999	666
SD6: N.W. Central	1,002	833	1,665	1,501	1,000	844	563
Total Urban	4,102	5,367	5,325	4,801	3,199	2,700	1,800
TOTAL CITY	6,897	10,672	12,001	8,005	7,999	4,500	4,500
PERCENT OF TOTAL UNI							
SD1: I-5 Corridor	10.12%	12.83%	16.16%	11.61%	17.43%	11.62%	17.42%
SD2: I-15 Corridor	27.40%	29.86%	24.98%	17.95%	26.94%	17.96%	26.93%
SD7: South Bay	3.00%	7.02%	14.50%	10.49%	15.64%	10.42%	15.64%
Total Suburban	40.52%	49.71%	55.63%	40.05%	60.00%	40.00%	60.00%
SD3: N.E. Central	5.96%	2.17%	5.45%	7.38%	4.91%	7.38%	4.91%
SD4: S.E. Central	28.78%	22.43%	8.63%	11.68%	7.78%	11.67%	7.78%
SD5: S.W. Central	10.21%	17.88%	16.42%	22.20%	14.80%	22.20%	14.80%
SD6: N.W. Central	14.53%	7.81%	13.88%	18.76%	12.50%	18.76%	12.51%
Total Urban	59.48%	50.29%	44.38%	60.01%	39.99%	60.00%	40.00%
TOTAL CITY	100.00%	100.00%	100.01%	100.06%	99.99%	100.00%	100.00%

Note: The above table is based on the remaining plan capacity proportions.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

of total caps on single family housing production. The computation of levels of single family housing production is based on an analysis of percentage share of single family and multi family housing relative to the total housing production for each superdistrict during the last seven years. The results of this procedure are shown in Table A-2. These computations are valid under the assumption that the average split between single and multi family housing completions will remain stable in the very short run (e.g. developers will not immediately react to caps by changing the balance between the two types of housing).

The allocation of single family housing units under caps necessitates a stronger emphasis for suburban areas. During the 1980-86 period, 60% of total housing units were built in urban superdistricts. Toward the end of the period building activity has been equally distributed among urban and suburban superdistricts. Single family housing production, however, is not evenly divided between the two types of superdistricts, with suburban superdistricts receiving a much larger share of single family housing production. Therefore, under the suburban emphasis alternatives, 80% of single family housing production is expected to occur in suburban superdistricts.

TABLE A-2: AVERAGE ANNUAL SINGLE FAMILY HOUSING COMPLETIONS DURING THE 1980-86 PERIOD AND THE CAP ALLOCATIONS FOR SINGLE FAMILY HOUSING PERMITS BY SUPERDISTRICT

Superdistricts	Avg. Annual SF Compl. 1980-86	1986 SF Completions	12000 Cap	8000 Cap Urban Emphasis	8000 Cap Suburban Emphasis	4500 Cap Urban Emphasis	4500 Cap Suburban Emphasis
SINGLE FAMILY UNITS							
SD1: I-5 Corridor	215	512	597	286	429	161	241
SD2: I-15 Corridor	1,338	2,216	2,122	1,017	1,525	572	858
SD7: South Bay	123	170	1,034	496	744	279	418
Total Suburban	1,676	2,898	3,753	1,799	2,698	1,012	1,517
SD3: N.E. Central	187	25	298	269	179	151	101
SD4: S.E. Central	685	782	357	322	215	181	121
SD5: S.W. Central	64	86	179	161	107	91	60
SD6: N.W. Central	157	72	261	235	157	132	88
Total Urban	1,093	965	1,095	987	658	555	370
TOTAL CITY	2,769	3,863	4,848	2,786	3,356	1,567	1,887
PERCENT OF TOTAL UNI							
SD1: I-5 Corridor	7.76%	13.25%	12.31%	10.27%	12.78%	10.27%	12.77%
SD2: I-15 Corridor	48.32%	57.36%	43.77%	36.50%	45.44%	36.50%	45.47%
SD7: South Bay	4.44%	4.40%	21.33%	17.80%	22.17%	17.80%	22.15%
Total Suburban	60.53%	75.02%	77.41%	64.57%	80.39%	64.58%	80.39%
SD3: N.E. Central	6.75%	0.65%	6.15%	9.66%	5.33%	9.64%	5.35%
SD4: S.E. Central	24.74%	20.24%	7.36%	11.56%	6.41%	11.55%	6.41%
SD5: S.W. Central	2.31%	2.23%	3.69%	5.78%	3.19%	5.81%	3.18%
SD6: N.W. Central	5.67%	1.86%	5.38%	8.44%	4.68%	8.42%	4.66%
Total Urban	39.47%	24.98%	22.59%	35.43%	19.61%	35.42%	19.61%
TOTAL CITY	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Note: The above table is based on remaining plan capacity proportions.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

APPENDIX B:

HEDONIC PRICE MODEL FOR SHORT RUN ANALYSIS

I. Data Base and Method

The hedonic price model for single family housing sales in San Diego County was based on data extracted from two major sources. The Real Estate Information Systems by DAMAR Corporation was employed to gather data for monthly sales from January 1980 to December 1987. This sales information included base data related to the physical characteristics of housing units, and their geographic location for each sales transaction. The second source, SANDAG Sourcepoint-Series 7, included data for household incomes, and land and housing supplies by Community Plan Area (CPA). SANDAG data included only yearly observations for the 1980-86 period. The raw data from these sources, as well as data generated by the research team, such as the distance to employment centers by highway miles, were modified for use in the economic analysis.

The analysis was done on observations of individual home sales. Geographic variables were identified either at the CPA or superdistrict level. Data collection from DAMAR was disaggregated at the CPA level. The DAMAR searches captured single family housing sales during the 1980-87 period in 49 CPAs, 26 of which were located within San Diego City boundaries, 14 were CPAs representing other cities in the County, and the remaining 9 were from the unincorporated areas. For analytical purposes, the CPAs were then aggregated into 10 Superdistricts of which 7 were in the city, and 3 in the county.

The sampling of sales transactions for each CPA was done by choosing 1-3 representative Thomas Brothers map grids each containing 50 or less observations. Where individual grids contained too few observations, more than three map grids were searched so that the entire geographic area of a CPA was covered. Due to the variation in the size of CPAs, and the changing dynamics of the housing market, the number of observations for each CPA varied considerably, averaging around 89 observations per CPA. In total, the DAMAR searches

revealed 4,365 gross observations which where reduced to 3,800 in the final model because of elimination of observations with undefined mortgage terms. The distribution of these observations by CPA, superdistrict, and year, including basic statistics of some key variables are provided in Tables B-1 and B-2.

II. Model Description

Multivariate regression was used to model the hedonic components of housing prices, with NEWPRICE (sales price in constant 1987 dollars/1000) being the dependent variable. The hedonic price approach evaluates how various physical and economic housing characteristics contribute to explaining home sales prices. In reality, a sales price is a single, unified sum expressed in dollar terms. In theory, however, one can differentiate the analytical components of a sales price and argue that each component contributes separately in defining price levels.

The adjusted R-Squared is .67 indicating that the model is able to explain two-thirds of the hedonic composition of housing prices. Table B-3 summarizes the outcomes of the model. A closer description of variables used follows.

Physical Characteristics of Housing Units: SQFT, AGE1, BATHS, and DVIEW represent the group of variables with the most aggregate explanatory powers, all with positive coefficients and high statistical significance. The model indicates that buyers pay $63 for an additional square foot, $420 for one year older building, $5,790 for an additional bathroom, and $16,000 for a view. The model assumes that these variables are continuous throughout time and space.

Income: The median household income by CPA in 1980, MEDINC80, has high correlation with sales prices indicating that the income level of a certain CPA strongly defines the housing environment there, and hence the sales prices. The model indicates that a $1 increase in the median income of a CPA causes the sales prices to rise by $4.

TABLE B-1: SUMMARY OF DATA BASE - OBSERVATIONS OF SALES PRICES
BY SUPERDISTRICTS AND COMMUNITY PLAN AREAS

Superdistricts	Community Plan Areas No./ Name	Number of Observations	Median Price	Average Price/Sqft
SD1: I-5 Corridor	1421 North City West	35	$216,000	$89
	1440 Torrey Pines	7	$193,000	$137
		42	$212,000	$97
SD2: I-15 Corridor	1429 Penasquitos East	119	$143,000	$80
	1409 Miramar Ranch North	11	$133,000	$76
	1415 Mira Mesa	127	$111,000	$90
	1434 Scripps Miramar Ranch	120	$172,000	$92
	1431 Rancho Bernardo	76	$179,000	$91
		453	$148,000	$88
SD3: N.E. Central	1435 Serra Mesa	88	$109,500	$87
	1420 Navajo	127	$116,000	$91
	1447 Tierrasanta	84	$143,000	$85
		299	$122,000	$87
SD4: S.E. Central	1436 South Bay Terraces	46	$87,000	$75
	1444 Skyline-Paradise Hills	86	$77,000	$78
	1413 Mid-City	128	$90,500	$97
	1438 State University	86	$117,000	$89
	1437 Southeast San Diego	49	$68,000	$67
		395	$90,000	$85
SD5: S.W. Central	1430 Peninsula	116	$171,000	$124
	1442 Uptown	45	$133,000	$121
	1423 Ocean Beach	20	$111,500	$128
	1408 Golden Hill	65	$101,000	$90
	1428 North Park	78	$91,500	$98
		324	$129,000	$111
SD6: N.W. Central	1406 Clairemont Mesa	127	$114,000	$94
	1499 University South	40	$145,000	$98
	1427 Pacific Beach	50	$161,500	$153
	1418 Mission Beach	16	$159,500	$168
	1412 Linda Vista	67	$103,000	$92
		300	$126,000	$108
SD7: South Bay	1425 Otay Mesa-Nestor	129	$93,000	$75
SAN DIEGO CITY TOTAL		1,942	$123,000	$93

TABLE B-1: SUMMARY OF DATA BASE - OBSERVATIONS OF SALES PRICES
BY SUPERDISTRICTS AND COMMUNITY PLAN AREAS (continued)

Superdistricts	Community Plan Areas No./ Name	Number of Observations	Median Price	Average Price/Sqft
SD8: North County	100 Carlsbad	59	$144,000	$93
	400 Del Mar	35	$309,000	$179
	700 Escondido	125	$103,000	$79
	1200 Oceanside	127	$92,000	$85
	1500 San Marcos	84	$102,500	$74
	1800 Vista	73	$95,000	$81
	1909 North County Metro	38	$122,500	$80
	1920 Valley Center	35	$145,000	$80
	1952 Bonsall	42	$154,500	$85
		618	$122,000	$87
SD9: East County	500 El Cajon	62	$102,500	$81
	1300 Poway	120	$134,000	$88
	1600 Santee	112	$96,000	$81
	1901 Alpine	39	$131,000	$72
	1903 Crest-Dehesa	40	$104,000	$80
	1907 Barona-Lakeside	70	$109,500	$80
	1914 Ramona	88	$108,500	$75
		531	$112,000	$81
SD10: South County	200 Chula Vista	87	$108,000	$85
	800 Imperial Beach	90	$86,500	$83
	900 La Mesa	130	$104,000	$88
	1000 Lemon Grove	45	$88,000	$79
	1100 National City	25	$79,000	$79
	1918 Sweetwater	70	$153,000	$85
	1919 Valle de Oro	38	$249,000	$111
		485	$117,000	$87
SAN DIEGO COUNTY TOTAL		3,576	$121,000	$89

Note: Total Number of cases = 3,800
Number of missing cases = 224 or 5.9%

Source: Center for Real Estate and Urban Economics, March 30, 1988.

TABLE B-2: SUMMARY OF DATA BASE - OBSERVATIONS OF SALES PRICES BY YEARS (1980-1987)

Years	Number of Observations	Median Price	Average Price/Sqft
1980	329	$98,000	$65
1981	244	$100,000	$69
1982	137	$106,000	$71
1983	396	$104,000	$76
1984	466	$110,000	$79
1985	507	$115,000	$84
1986	889	$122,000	$87
1987	608	$129,000	$91
TOTAL	3,576	$121,000	$89

Note: Total Number of Cases = 3,800
Number of Missing Cases = 224 or 5.9%

Source: Center for Real Estate and Urban Economics, March 30, 1988.

TABLE B-3: HEDONIC PRICE MODEL

METHOD: Multivariate Regression
DEPENDENT VARIABLE: NEWPRICE (CPIH-deflated Sales Price)

	VARIABLES IN THE EQUATION		COEFF	BETA	T	SIGN T
Physical Charact. of Hsg. Unit	SQFT	(Size of housing unit in squarefeet)	0.063	0.620	36.89	0.0000
	AGE1	(Age of the unit sold)	0.420	0.116	7.09	0.0000
	BATHS	(Number of bathrooms)	5.788	0.065	3.72	0.0002
	DVIEW	(View)	15.986	0.101	8.86	0.0000
Income	MEDINC80	(Median household income in 1980)	0.004	0.316	17.97	0.0000
Location	DSD8	(Superdistrict 8: North County)	61.239	0.404	10.44	0.0000
	DCOAST	(Coastal CPAs)	31.333	0.212	16.23	0.0000
	DSD5	(Superdistrict 5: S.W. Central)	33.528	0.165	7.86	0.0000
	DIST2	(Wt.Avg. Miles to nearest 2 emp. centers)	-1.316	-0.151	-8.65	0.0000
	DSD10	(Superdistrict 10: South County)	20.684	0.125	4.79	0.0000
	DSD2	(Superdistrict 2: I-15 Corridor)	19.299	0.122	4.46	0.0000
	DSD9	(Superdistrict 9: East County)	14.534	0.099	3.80	0.0001
	DSD4	(Superdistrict 4: S.E. Central)	14.088	0.084	3.67	0.0002
	DSD6	(Superdistrict 6: N.W. Central)	14.218	0.076	3.67	0.0002
	DSD1	(Superdistrict 1: I-15 Corridor)	40.698	0.063	4.87	0.0000
	DSD3	(Superdistrict 3: N.E. Central)	-4.660	-0.025	-1.18	0.2367
Land & Hsg Supply	LAGRAT	(Lagged ratio of dev'l to dev'd land)	-19.886	-0.209	-11.79	0.0000
	LAGSDCSF	(Lagged completions by Superdistricts)	-0.005	-0.105	-4.04	0.0001
IDO	DAPRX	(Sales after April 1987 in the city)	5.149	0.026	1.81	0.0703
Years	D84	(Year=1984)	-10.546	-0.067	4.02	0.0001
	D83	(Year=1983)	-10.424	-0.062	-3.86	0.0001
	D85	(Year=1985)	-6.022	-0.040	-2.24	0.0253
	D82	(Year=1982)	-7.347	-0.027	-2.07	0.0382
	D87	(Year=1987)	-1.959	-0.014	-0.66	0.5107
	D86	(Year=1986)	-1.562	-0.013	-0.59	0.5575
	CONSTANT		-54.006		-9.56	0.0000

ADJUSTED R SQUARE: .66526
STANDARD ERROR: 31.43368
F: 1236.70166
SIGN F: .0000

Source: CREUE, March 22, 1988.

Location: Variables representing locational differentials, DCOAST, DIST2, and superdistrict dummy variables, DSD1 to DSD10, prove to be highly influential in capturing the stratified character of the housing market in the County. Accordingly, superdistrict 8 which incorporates North County CPAs has the highest locational premium of $61,200. Coastal CPAs also have a $31,300 price differential compared to non-coastal places. Another significant locational variable is the weighted average miles to the nearest two employment centers, DIST2, which shows that housing prices decline by $1,300 for each additional mile of distance from employment centers [1]. The differentiated market issue becomes more clear when the signs and magnitude of difference of superdistrict dummies are taken into consideration. Superdistricts which are located to the north of downtown San Diego have positive and highly significant price premiums. The price premiums of the superdistricts to the east and south of downtown San Diego, on the other hand, have either negative signs and/or are smaller in magnitude. No dummy was used for superdistrict 7. Thus, the positive or negative variations in price vary around the level found for that superdistrict.

Land and Housing Supply: In order to capture the impacts of land use policies and supply side market effects, land and housing supply variables were incorporated into the model. The yearly ratio of developable to developed land for each CPA was calculated with a countback technique where the developable land, as specified in 1986, was taken as the basis; and for each preceding year the number of homes completed was multiplied with average developed land per unit and added to the developable land of that year.

The ratio, lagged one year, has a negative and highly significant coefficient. Sales prices in the CPA which has a one unit higher ratio than the next CPA in the year before, are lowered by $20,000. This means that prices tend to be significantly lower in places where there are no serious land supply constraints and relatively better opportunities for future residential growth. Further, the ratio proved to be indifferent to locational changes so that there was no need to create separate superdistrict variables with this variable.

The lagged completion variable, used in the basic model was significant, showing a $5 decrease in the value of a home within a superdistrict for each additional home completed in that superdistrict the year before. A separate model was tested where coefficients for each superdistrict were estimated independently of all others. This model was tried in order to highlight the differentiated character of housing markets in each superdistrict. Coefficients for superdistricts 2 and 8 were significant, probably due to the dynamics of construction activity there, but for the rest of the superdistricts the coefficients were highly insignificant. A test for relevance of additional regressors proved that there was no statistically significant difference between the two models, which leads us to report our findings for the simple, reduced model [2].

Interim Development Ordinance: We used a dummy variable for City of San Diego sales from April 1987 on to attempt to capture anticipatory and ex-post effects of the Interim Development Ordinance (IDO). The coefficient estimated for this variable varied between $4,000 to $6,000 for several models, and they were significant only within 90 percent to 95 percent confidence intervals. However, this variable was consistently significant with at least 90 percent confidence, and there was little variation in magnitude among models. The IDO variable (DAPRX) in the model presented here is significant at the .07 level (93 percent confidence) and indicates an overall $5,000 increase for the months after April 1987 when the IDO was first anticipated. The effects of the IDO for each superdistrict were also investigated through separate estimates of each coefficient. In this case, too, the expanded model was not significantly different from the reduced model.

Time: The effects of the macro-economy on sales prices are captured by year dummy variables (D80 to D87). They show that during the 82-84 period prices fell significantly following the recession of 1982, and they rose steadily after 1985, when the variance among the years, however, did not make much significant difference.

III. Short Run Effects of Cap Alternatives on Single Family Housing Prices

The analysis of short run effects of dwelling unit cap alternatives on single family housing prices was conducted as a sensitivity test where single family housing caps by superdistrict (see Table A-2) were applied to the hedonic price model. The test was based on 1987 typical housing characteristics by superdistrict, that are summarized in Table B-4, in order to capture the most recent trends of the housing market.

The comparison of fitted values of sales prices with the actual ones revealed that the model was capable of making close predictions (Table B-5). In the sensitivity test, the values of lagged superdistrict completions were replaced with the alternate superdistrict caps, assuming that the typical housing characteristics would still prevail in the short run. The results, therefore, can be interpreted as what the price levels would be in 1989 if the housing caps would be enacted in 1988. In the long run, however, impacts may well be more severe. For example, in other markets developers have been found to switch to the construction of more expensive homes under binding constraints of residential caps. Thus, in San Diego, under caps, typical housing characteristics may change, pushing up prices above the "expected" levels forecast by the model. Another underlying assumption in the short run price effects is that the superdistrict cap allocations would equal the actual completions, i.e. we assume a full built-out. This assumption is likely to underestimate short run effects for two reasons. First, less than 100 percent of permits are built out. Second, superdistricts with over-allocations may actually follow closer to historic trends in early years.

The most evident outcome of this analysis is that prices tend to increase relatively more in places where caps are real binding constraints. Table B-5 shows the expected price levels under alternative cap levels. Caps that restrict single family housing permits by 12,000 and 8,000 units seem not to strongly effect price levels since they do not represent real constraints for many superdistricts. Only under the 4,500 unit alternative do the impacts of caps become apparent for superdistricts where at the present most of the building activity is

TABLE B-4: TYPICAL HOUSING CHARACTERISTICS IN 1987

Superdistricts	Average Size (sqft)	Average Number of Bathrooms	Average Age	Average View (1-0)	Average HH. Income 1980	Average LAGRAT
SD1: I-5 Corridor	2,255	2.7	4.5	0.154	$32,480	0.672
SD2: I-15 Corridor	1,723	2.2	12.6	0.000	$25,876	0.183
SD3: N.E. Central	1,644	2.1	20.5	0.159	$22,888	0.037
SD4: S.E. Central	1,154	1.4	38.8	0.034	$14,568	0.042
SD5: S.W. Central	1,312	1.4	46.6	0.101	$15,382	0.102
SD6: N.W. Central	1,243	1.5	29.2	0.076	$19,247	0.008
SD7: South Bay	1,378	2.0	17.8	0.000	$17,425	0.050
CITY AVERAGE	1,456	1.8	24.8	0.085	$20,111	0.286

Source: Center for Real Estate and Urban Economics, March 29, 1988.

TABLE B-5: SHORT RUN PRICE EFFECTS OF HOUSING CAP ALTERNATIVES ON SINGLE FAMILY HOME PRICES

Superdistricts	1987 Actual Avg Price	1987 Pred Avg Pr w/o IDO	1987 Pred Avg Pr w/ IDO	Short-run Price Effect of Alternative Caps				
				ALT. 1	ALT. 2A	ALT. 2B	ALT.3A	ALT. 3B
SD1: I-5 Corridor	236,440	244,897	250,046	249,646	251,109	250,436	251,696	251,320
SD2: I-15 Corridor	155,225	158,358	163,507	163,949	169,146	166,756	171,238	168,893
SD3: N.E. Central	140,709	143,954	149,103	147,819	147,955	148,378	148,510	148,745
SD4: S.E. Central	100,437	97,675	102,824	104,823	104,987	105,490	105,650	105,932
SD5: S.W. Central	165,914	151,914	157,063	156,626	156,710	156,964	157,039	157,185
SD6: N.W. Central	134,748	130,419	135,568	134,679	134,801	135,168	135,286	135,493
SD7: South Bay	96,652	101,459	106,608	102,545	105,075	103,908	106,095	105,442

Note: RPOZ effects are not included.

Source: Center for Real Estate and Urban Economics, March 29, 1988.

occurring, and therefore, will be seriously curtailed by caps. This is true for superdistricts 2 and 4 where prices may be expected to rise by 3 percent to 5 percent which may correspond to $3,000 to $8,000 increase in actual prices in a time span as short as a single year. For the rest of the superdistricts the price effects are not significant, partly because they are not experiencing as heavy building activity as are superdistricts 2 and 4, and partly because of a possible mismatch of cap allocations by future plan capacity and short run market allocations by historic trends. It is also noteworthy that these short term price predictions only include one aspect of land use control measures that could be implemented by the City of San Diego. For example, measures to prohibit development in the recently identified Resource Protection Overlay Zones (RPOZ) could also effect single family housing prices. Unfortunately, the RPOZ information was not available at the time this analysis was performed.

Notes:

(1) The calculations of DIST2 by CPA were performed by the below formula:

DIST2 = [d1(Emp1)+d2(Emp2)]/(Emp1+Emp2) where,

d1:	Distance from CPA to the nearest employment center
d2:	Distance from CPA to the second nearest employment center
Emp1:	Total employment in the first employment center
Emp2:	Total employment in the second employment center

(2) Relevance of additional regressors tests were conducted with the application of the formula by Jan Kmenta (See J. Kmenta, Elements of Econometrics [New York: MacMillan, 1971], pp. 370-371).

[(SSRq-SSRk)/(Q-K)]/[SSEq/(n-Q)] ... F (Q-K),(n-Q) where,

Q:	Number of variables in the expanded model
K:	Number of variables in the reduced model
SSRq:	Sum of Squares of the Residual - expanded model
SSRk:	Sum of Squares of the Residual - reduced model
SSEq:	Sum of Squares of the Explained -expanded model
n:	Number of cases

References:

Kmenta, John, Elements of Econometrics, New York: MacMillan Publishing Co., 1971.

1988 Thomas Guide, San Diego County - Census Tract Edition, Irvine: Thomas Bros. Maps, 1987.

APPENDIX C

SHIFTSHARE ANALYSIS AND EMPLOYMENT FORECASTS

Although the primary forecasting tool used in this study was the econometric time series model discussed in Appendix D, alternative forecasts were developed for certain aggregate employment sectors using first, a shiftshare analysis and second, a "constant shares" forecast. These forecasts have provided bench marks against which the time series forecast could be measured. A time series forecast lying well outside the range of either the shiftshare or the constant share forecast would be of doubtful reliability. One of the shiftshare forecasts was also used as an alternative to the time series forecasts for San Diego's export sectors in one of our forecasts based on time series models (see Appendix D). The theory of shiftshare analysis and forecasting as well as a discussion of how these techniques were used in this study follows below.

Shiftshare analysis measures the changing composition of a local economy over time as compared against a larger reference economy. The analysis compares data from two points in time for both the local and the reference economy using various economic indicators such as employment or wages. Shiftshare analysis breaks down the change in local economic performance over time into three basic components (Landis, 1985):

> ECONOMIC GROWTH. This component measures the aggregate growth rate for the entire reference economy.
>
> PROPORTIONAL SHIFT. This measures the changing share or proportion each of the individual sectors making up the reference economy represent of that economy over time. If the proportional shift factor for a particular sector is positive, this sector is increasing its share of the total economy, if the factor is negative, the sector is declining relative to the reference economy.

DIFFERENTIAL SHIFT. This final component measures the performance of a local sector against that same sector's performance in the reference economy. The differential shift also measures the competitiveness of the local sector against the same sector in the reference economy. If the differential shift factor is positive, this sector is performing better in the local economy than it is in the reference economy. If the factor is negative, then this sector is not performing in the local economy as well as it is in the overall reference economy.

The sum of these three change components represents an overall change factor for each sector of the local economy. This total change factor shows the overall performance for this sector in the local economy for the time period modeled in the analysis.

For purposes of this study, we used employment as the economic indicator and looked at change from 1975 to 1980, 1980 to 1985, and 1975 to 1985 with San Diego County as the local economy and the U.S. as the reference economy. The analysis was done for a set of aggregate employment sectors in San Diego's economy that sum to total private employment (see discussion in Chapter 4). Table C-1 shows the historic shiftshare analysis for eight aggregate sectors of San Diego's economy for the three time periods mentioned above (for more detailed definition of the computational formulas, see Landis, 1985). During all three time periods all eight sectors had positive differential shift factors indicating that the county has a strong competitive advantage which has fostered stronger growth in these sectors locally than they have experienced in the U.S. economy as a whole.

To use shiftshare analysis for forecasting, some data is required that is "exogenous" to the model, to forecast growth rates in the reference economy. For this study we took the Bureau of Labor Statistics (BLS) high, moderate, and low employment forecasts for two-digit SIC codes and combined them into the appropriate sectors. We then computed the economic growth and proportional shift factors from the U.S. employment projections using the same methodology as in the historic shiftshare analysis for the 1985-1990, 1990-1995, and 1995-2000

TABLE C-1: Aggregated Shift Share Analysis For San Diego and U.S. 1975, 1980, 1985

Sector	Employment						Shiftshare Analysis			
	San Diego			U.S.			Ec Grw 75-80	FaProp 75-80	ShftDffr 75-80	Shft Total 75-80
	1975	1980	1985	1975	1980	1985				
Extractive	2,802	4,924	6,736	915,086	1,284,815	1,325,004	0.24	0.17	0.35	0.76
Construction	20,646	37,653	47,226	3,322,200	4,473,010	4,479,533	0.24	0.11	0.48	0.82
Total Manuf.	77,918	107,293	121,178	18,372,127	21,164,697	19,433,606	0.24	-0.08	0.22	0.38
HTech Manuf.	55,499	76,103	88,003	6,592,207	7,955,785	7,432,103	0.24	-0.03	0.16	0.37
Other Manuf.	22,419	31,190	33,175	11,779,920	13,208,912	12,001,503	0.24	-0.12	0.27	0.39
Basic Serv.	40,610	80,451	103,739	7,929,367	10,298,005	12,228,152	0.24	0.06	0.68	0.98
Local Serv.	141,954	205,326	256,503	21,372,302	26,398,195	30,693,636	0.24	0.00	0.21	0.45
TCU	19,882	26,839	28,453	3,601,286	4,354,327	4,548,276	0.24	-0.03	0.14	0.35
Tourism	41,996	65,439	81,456	4,510,259	6,312,539	7,369,866	0.24	0.16	0.16	0.56
TOTAL	349,013	533,027	655,927	60,518,871	74,844,180	81,119,257	0.24	0.00	0.29	0.53

Source: County Business Patterns, CREUE

Table C-1: Continued

Sector	Ec Grw 80-85	FaProp 80-85	ShftDffr 80-85	Shft Total 80-85	Ec Grw 75-85	FaProp 75-85	ShftDffr 75-85	Shft Total 75-85
Extractive	0.08	-0.05	0.34	0.37	0.34	0.11	0.96	1.40
Construction	0.08	-0.08	0.25	0.25	0.34	0.01	0.94	1.29
Total Manuf.	0.08	-0.17	0.21	0.13	0.34	-0.28	0.50	0.56
HTech Manuf.	0.08	-0.15	0.22	0.16	0.34	-0.21	0.46	0.59
Other Manuf.	0.08	-0.18	0.16	0.06	0.34	-0.32	0.46	0.48
Basic Serv.	0.08	0.10	0.10	0.29	0.34	0.20	1.01	1.55
Local Serv.	0.08	0.08	0.09	0.25	0.34	0.10	0.37	0.81
TCU	0.08	-0.04	0.02	0.06	0.34	-0.08	0.17	0.43
Tourism	0.08	0.08	0.08	0.24	0.34	0.29	0.31	0.94
TOTAL	0.08	0.00	0.15	0.23	0.34	0.00	0.54	0.88

time periods. To forecast the differential shift factor indicating San Diego's performance relative to the U.S. in each sector we employed two different techniques. The first technique, as shown in Table C-2 assumes that San Diego County will retain its 1980-1985 differential shift factor as a constant for all of the forecasted time periods. The second technique, as shown in Table C-3 assumes that San Diego's competitiveness advantage is converging with the U.S. economy as a whole. Therefore, the differential shift factor for each sector was cut in half for each of the three forecasted time periods. For example the differential shift factor for Extractive (natural resources) for the 1980-1985 time period was .35. For the 1985-1990 this was cut in half to .17 and in half again for the 1990-1995 period to .09. This converging share concept reflects the theory that a rapidly growing economy will experience an initial boom when its competitive advantage is strongest, followed by a period when the growth advantage begins to taper off. As a result of this tapering off, the local economy's growth rate begins to more closely reflect national growth trends. This converging growth pattern seems to have occurred with San Diego's larger sectors during the 1975 to 1985 period. Differential shift factors tended to he higher for the 1975 to 1980 period reflecting the initial growth boom and then dropped off from 1980 to 1985 to a rate that was more in line with the total U.S. economy. Regardless of which differential shift factor was used, it was summed with the other two growth factors, added to 1, and then multiplied by the previous period's employment to get the new employment forecast.

A third technique was also used to forecast employment which was not based on the shiftshare methodology but used a "constant shares" approach to forecasting San Diego's employment. This method assumed that each sector in San Diego's economy would grow (or decline) at the equivalent rate of change being forecast for that sector for the U.S. as a whole. This rate of change was computed based on the BLS employment forecasts. The resulting forecast is shown in Table C-4. The constant shares approach provides a lower bound for likely employment growth in San Diego through 2000, while the shiftshare forecast which retains the 1980-1985 differential shift factor provides an upper bound.

TABLE C-2: Shiftshare Employment Forecast Summary With Constant 1980-85 Differential Share

LOW FORECAST Sector	1985 Emp	1990 Emp	5 yr % Change Growth	 85-90	1995 Emp	10 yr % Change Growth	 85-95	2000 Emp	15 Yr % Change Growth	 85-2000
Extractive	6,736	8,536	1,800	26.73%	12,007	5,271	78.25%	16,700	9,964	147.91%
Construction	47,226	62,691	15,465	32.75%	80,695	33,469	70.87%	105,443	58,217	123.27%
Htech Manuf.	88,003	104,751	16,748	19.03%	122,627	34,624	39.34%	141,534	53,531	60.83%
Other Manuf.	33,175	37,262	4,087	12.32%	41,995	8,820	26.59%	46,596	13,421	40.45%
Basic Serv.	103,739	134,603	30,864	29.75%	155,578	51,839	49.97%	186,818	83,079	80.09%
Local Serv.	256,503	316,472	59,969	23.38%	364,269	107,766	42.01%	426,850	170,347	66.41%
TCU	28,453	29,751	1,298	4.56%	30,901	2,448	8.60%	31,191	2,738	9.62%
Tourism	81,456	101,411	19,955	24.50%	115,427	33,971	41.70%	136,151	54,695	67.15%
Total	645,291	795,478	150,187	23.27%	923,499	278,208	43.11%	1,091,283	445,992	69.11%

MODERATE FORECAST Sector	1985 Emp	1990 Emp	5 yr % Change Growth	 85-90	1995 Emp	10 yr % Change Growth	 85-95	2000 Emp	15 Yr % Change Growth	 95-2000
Extractive	6,736	8,797	2,061	30.59%	12,335	5,599	83.11%	17,132	10,396	154.34%
Construction	47,226	65,039	17,813	37.72%	82,584	35,358	74.87%	108,294	61,068	129.31%
Htech Manuf.	88,003	105,300	17,297	19.65%	126,253	38,250	43.46%	152,592	64,589	73.39%
Other Manuf.	33,175	37,350	4,175	12.58%	42,959	9,784	29.49%	49,253	16,078	48.46%
Basic Serv.	103,739	132,610	28,871	27.83%	159,913	56,174	54.15%	196,696	92,957	89.61%
Local Serv.	256,503	316,277	59,774	23.30%	374,080	117,577	45.84%	449,523	193,020	75.25%
TCU	28,453	29,588	1,135	3.99%	31,594	3,141	11.04%	33,041	4,588	16.12%
Tourism	81,456	101,430	19,974	24.52%	118,277	36,821	45.20%	141,759	60,303	74.03%
Total	645,291	796,390	151,099	23.42%	947,994	302,703	46.91%	1,148,290	502,999	77.95%

HIGH FORECAST Sector	1985 Emp	1990 Emp	5 yr % Change Growth	 85-90	1995 Emp	10 yr % Change Growth	 85-95	2000 Emp	15 Yr % Change Growth	 95-2000
Extractive	6,736	8,851	2,115	31.40%	12,758	6,022	89.40%	17,919	11,183	166.03%
Construction	47,226	63,806	16,580	35.11%	84,026	36,800	77.92%	112,952	65,726	139.17%
Htech Manuf.	88,003	113,341	25,338	28.79%	134,762	46,759	53.13%	157,060	69,057	78.47%
Other Manuf.	33,175	40,111	6,936	20.91%	46,536	13,361	40.27%	51,797	18,622	56.13%
Basic Serv.	103,739	135,040	31,301	30.17%	164,134	60,395	58.22%	203,378	99,639	96.05%
Local Serv.	256,503	319,439	62,936	24.54%	383,984	127,481	49.70%	462,493	205,990	80.31%
TCU	28,453	29,631	1,178	4.14%	32,088	3,635	12.78%	34,115	5,662	19.90%
Tourism	81,456	101,232	19,776	24.28%	121,248	39,792	48.85%	144,952	63,496	77.95%
Total	645,291	811,452	166,161	25.75%	979,535	334,244	51.80%	1,184,666	539,375	83.59%

Note: Based on Bureau of Labor Statistics low, moderate, and high employment forecasts for the U.S..

Source: CREUE

TABLE C-3: Shiftshare Employment Forecast Summary With Converging Differential Shift

LOW FORECAST	1985	1990	5 yr % Change		1995	10 yr % Change		2000	15 Yr % Change	
Sector	Emp	Emp	Growth	85-90	Emp	Growth	85-95	Emp	Growth	85-2000
Extractive	6,736	7,391	655	9.73%	8,512	1,776	26.36%	9,306	2,570	38.15%
Construction	47,226	56,788	9,562	20.25%	62,449	15,223	32.23%	67,940	20,714	43.86%
Htech Manuf.	88,003	95,071	7,068	8.03%	95,608	7,605	8.64%	91,944	3,941	4.48%
Other Manuf.	33,175	34,608	1,433	4.32%	34,851	1,676	5.05%	33,790	615	1.85%
Basic Serv.	103,739	129,416	25,677	24.75%	139,876	36,137	34.83%	155,725	51,986	50.11%
Local Serv.	256,503	304,929	48,426	18.88%	330,401	73,898	28.81%	361,144	104,641	40.80%
TCU	28,453	29,467	1,014	3.56%	30,163	1,710	6.01%	29,919	1,466	5.15%
Tourism	81,456	98,153	16,697	20.50%	105,829	24,373	29.92%	117,422	35,966	44.15%
Total	645,291	755,823	110,532	17.13%	807,688	162,397	25.17%	867,190	221,899	34.39%

MODERATE FORECAST	1985	1990	5 yr % Change		1995	10 yr % Change		2000	15 Yr % Change	
Sector	Emp	Emp	Growth	85-90	Emp	Growth	85-95	Emp	Growth	95-2000
Extractive	6,736	7,652	916	13.59%	8,778	2,042	30.31%	9,581	2,845	42.23%
Construction	47,226	59,136	11,910	25.22%	64,000	16,774	35.52%	69,925	22,699	48.06%
Htech Manuf.	88,003	95,619	7,616	8.65%	98,869	10,866	12.35%	100,463	12,460	14.16%
Other Manuf.	33,175	34,696	1,521	4.58%	35,743	2,568	7.74%	35,975	2,800	8.44%
Basic Serv.	103,739	127,423	23,684	22.83%	144,101	40,362	38.91%	164,639	60,900	58.70%
Local Serv.	256,503	304,734	48,231	18.80%	339,858	83,355	32.50%	381,636	125,133	48.78%
TCU	28,453	29,303	850	2.99%	30,851	2,398	8.43%	31,723	3,270	11.49%
Tourism	81,456	98,172	16,716	20.52%	108,587	27,131	33.31%	122,544	41,088	50.44%
Total	645,291	756,735	111,444	17.27%	830,787	185,496	28.75%	916,486	271,195	42.03%

HIGH FORECAST	1985	1990	5 yr % Change		1995	10 yr % Change		2000	15 Yr % Change	
Sector	Emp	Emp	Growth	85-90	Emp	Growth	85-95	Emp	Growth	95-2000
Extractive	6,736	7,706	970	14.40%	9,142	2,406	35.72%	10,121	3,385	50.26%
Construction	47,226	57,903	10,677	22.61%	65,395	18,169	38.47%	73,602	26,376	55.85%
Htech Manuf.	88,003	103,661	15,658	17.79%	106,148	18,145	20.62%	103,278	15,275	17.36%
Other Manuf.	33,175	37,457	4,282	12.91%	38,962	5,787	17.44%	37,912	4,737	14.28%
Basic Serv.	103,739	129,853	26,114	25.17%	148,090	44,351	42.75%	170,540	66,801	64.39%
Local Serv.	256,503	307,896	51,393	20.04%	349,326	92,823	36.19%	393,239	136,736	53.31%
TCU	28,453	29,347	894	3.14%	31,340	2,887	10.15%	32,771	4,318	15.18%
Tourism	81,456	97,973	16,517	20.28%	111,467	30,011	36.84%	125,457	44,001	54.02%
Total	645,291	771,797	126,506	19.60%	859,871	214,580	33.25%	946,921	301,630	46.74%

Note: Based on Bureau of Labor Statistics low, moderate, and high employment forecasts for the U.S..

Source: CREUE

TABLE C-4: Constant Shares Model Employment Forecast Summary

LOW FORECAST	Employment				U.S. Sectoral Growth			San Diego Forecasts from U.S. Sectoral Rates			Percent Change, San Diego		
	San Diego	U.S. (in 1,000s)											
	1985	1985	1990	1995	2000	85-90	90-95	95-2000	1990	1995	2000	85-90	85-95	85-2000
Extractive	6,736	1,732	1,606	1,713	1,800	-7.3%	6.7%	5.1%	6,246	6,662	7,000	-7.3%	-1.1%	3.9%
Construction	47,226	6,015	6,481	6,722	7,103	7.7%	3.7%	5.7%	50,885	52,777	55,768	7.7%	11.8%	18.1%
Htech Manuf.	88,003	8,186	7,943	7,551	7,054	-3.0%	-4.9%	-6.6%	85,391	81,176	75,834	-3.0%	-7.8%	-13.8%
Other Manuf.	33,175	11,388	10,969	10,607	10,072	-3.7%	-3.3%	-5.0%	31,954	30,900	29,341	-3.7%	-6.9%	-11.6%
Basic Serv.	103,739	13,746	16,461	17,380	19,132	19.8%	5.6%	10.1%	124,229	131,164	144,386	19.8%	26.4%	39.2%
Local Serv.	256,503	39,508	45,189	47,947	51,869	14.4%	6.1%	8.2%	293,387	311,293	336,756	14.4%	21.4%	31.3%
TCU	28,453	5,229	5,363	5,463	5,405	2.6%	1.9%	-1.1%	29,182	29,726	29,411	2.6%	4.5%	3.4%
Tourism	81,456	8,613	10,034	10,618	11,675	16.5%	5.8%	10.0%	94,895	100,418	110,414	16.5%	23.3%	35.6%
Total*	655,927	94,417	104,046	108,001	114,110	10.2%	3.8%	5.7%	716,168	744,116	788,911	11.0%	15.3%	22.3%
MODERATE FORECAST	San Diego	U.S. (in 1,000s)												
	1985	1985	1990	1995	2000	85-90	90-95	95-2000	1990	1995	2000	85-90	85-95	85-2000
Extractive	6,736	1,732	1,673	1,777	1,864	-3.4%	6.2%	4.9%	6,507	6,911	7,249	-3.4%	2.6%	7.6%
Construction	47,226	6,015	6,780	6,914	7,338	12.7%	2.0%	6.1%	53,232	54,284	57,613	12.7%	14.9%	22.0%
Htech Manuf.	88,003	8,186	7,994	7,826	7,737	-2.3%	-2.1%	-1.1%	85,939	84,133	83,176	-2.3%	-4.4%	-5.5%
Other Manuf.	33,175	11,388	10,999	10,891	10,744	-3.4%	-1.0%	-1.3%	32,042	31,727	31,299	-3.4%	-4.4%	-5.7%
Basic Serv.	103,739	13,746	16,197	17,912	20,241	17.8%	10.6%	13.0%	122,236	135,179	152,756	17.8%	30.3%	47.3%
Local Serv.	256,503	39,508	45,159	49,348	54,859	14.3%	9.3%	11.2%	293,192	320,389	356,168	14.3%	24.9%	38.9%
TCU	28,453	5,229	5,333	5,508	5,732	2.0%	4.8%	2.6%	29,019	30,406	31,190	2.0%	6.9%	9.6%
Tourism	81,456	8,613	10,036	10,900	12,192	16.5%	8.6%	11.9%	94,914	103,085	115,304	16.5%	26.6%	41.6%
Total*	655,927	94,417	104,171	111,156	120,707	10.3%	6.7%	8.6%	717,080	766,114	834,756	11.1%	18.7%	29.4%
HIGH FORECAST	San Diego	U.S. (in 1,000s)												
	1985	1985	1990	1995	2000	85-90	90-95	95-2000	1990	1995	2000	85-90	85-95	85-2000
Extractive	6,736	1,732	1,687	1,858	1,978	-2.6%	10.1%	6.5%	6,561	7,226	7,693	-2.6%	7.3%	14.2%
Construction	47,226	6,015	6,623	7,066	7,732	10.1%	6.7%	9.4%	52,000	55,478	60,707	10.1%	17.5%	28.5%
Htech Manuf.	88,003	8,186	8,742	8,471	8,009	6.8%	-3.1%	-5.5%	93,980	91,067	86,100	6.8%	3.5%	-2.2%
Other Manuf.	33,175	11,388	11,947	11,949	11,388	4.9%	0.0%	-4.7%	34,803	34,809	33,175	4.9%	4.9%	0.0%
Basic Serv.	103,739	13,746	16,519	18,426	20,989	20.2%	11.5%	13.9%	124,666	139,058	158,401	20.2%	34.0%	52.7%
Local Serv.	256,503	39,508	45,646	50,761	56,571	15.5%	11.2%	11.4%	296,354	329,562	367,283	15.5%	28.5%	43.2%
TCU	28,453	5,229	5,341	5,677	5,922	2.1%	6.3%	4.3%	29,062	30,891	32,224	2.1%	8.6%	13.3%
Tourism	81,456	8,613	10,015	11,194	12,487	16.3%	11.8%	11.6%	94,715	105,865	118,094	16.3%	30.0%	45.0%
Total*	655,927	94,417	106,520	115,402	125,076	12.8%	8.3%	8.4%	732,142	793,957	863,676	13.5%	23.0%	33.8%

* Totals for San Diego for 1990, 95 and 2000 are not exactly equivalent to the total for 1985. The late totals exclude admin/aux employment, which is included in 1985. % growth calculations take this into account.

NOTE: Growth determined entirely by mix of industry and U.S. sectoral growth. Growth rates based on Bureau of Labor Statistics low, moderate, and high employment forecasts for the U.S..

Source: County Business Patterns, BLS Employment Forecasts, CREUE.

References

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APPENDIX D

TIME SERIES FORECASTS OF EMPLOYMENT AND RELATED FACTORS

Time series models of San Diego employment and related economic factors were calibrated in order to be able to forecast employment change over time and to identify interrelationships among job growth, housing construction and housing prices. The analysis involves both econometric models calibrated on a data series covering 21 years and multiplier estimates with multiplictive factors calculated from historic trends. All models and forecasts cover the entire county. Estimates for the city of San Diego are described in Appendix F.

I. General Structure of the Model

The analysis operates in several stages. First, forecasts are made of sectors "driven" by national trends--high tech manufacturing, other manufacturing, and tourism. These sectors are used as the basis for growth in other employment sectors of the economy--natural resources, construction, business services, transportation and communications (TCU), and retail trade and services. Employment in all or some sectors is also used in econometric models of population, per capita income, housing prices and rents. Housing production is estimated from employment growth using multipliers based on historic experience.

The econometric models calibrated are linear and robust. Variables in each time series regression model are mostly untransformed. They have high adjusted R-squared values and significant explanatory power, meaning that most of the models are stable enough for predictive purposes.

In the course of developing the models, we examined other structural forms for modelling, including non-linear model forms (log on log) and annual change increment variables (e.g., the annual change in tourism employment explained as a function of the annual change in U.S. tourism employment). These forms, though not stable enough for forecasting, yielded additional insights into the structure and the nature of interactions in the San Diego regional economy. These insights added to our formulation of more robust linear models.

II. Data Sources

Data for the analysis came primarily from published sources. Some of the data required adjustments to allow for a consistent 21-year time series. The major adjustments made are described here, and a complete listing of the data is provided in Section VIII of this appendix.

Private Employment Data

All of the private employment data used to calibrate the time series models is from the U.S. Census Bureau's annual publication County Business Patterns (CBP). CBP is the one source of employment data for San Diego that was available in an annual series of at least 2 decades (we used the 21 years between 1965 and 1985). In 1972 some Standard Industrial Classification Codes (SIC Codes) were redefined, but this change was generally at a more detailed level (3 and 4-digit SICs) while our analysis relied on broader aggregations of industries (groupings of 2- digit SICs). Analysis with dummy variables did not find the SIC classification changes to be significant; our analysis assumes the broad aggregates defined for the San Diego economy (see Section III of this appendix) contain essentially the same sorts of industries in 1965 as they do in 1985.

United States Employment Forecasts

CBP data was used for historic time series for the United States as well as for San Diego, to keep data sources as consistent as possible. For forecasting purposes, however, growth rates for the relevant U.S. sectors were taken from the U.S. Bureau of Labor Statistics, Industry Forecasts to the Year 2000 (unpublished detailed computer print-outs). These growth rates were applied to the aggregate U.S. sectors created for this study (e.g. high tech manufacturing employment), to produce U.S. forecasts to drive the basic-sector San Diego models.

Public Sector Employment

Public sector employment data for local, state, and federal employees was obtained from the California Employment Development Department's (EDD) Annual Planning Information

publication for San Diego County, covering the period 1972-1986. Data for 1987 was provided in preliminary form by John Nowell, the EDD labor market analyst for San Diego County. EDD does not have consistent data for years prior to this period, while CBP does not report government employment. For consistency, EDD's total private sector employment was used as the explanatory variable in calibrating the model, rather than CBP data. Before deciding to incorporate EDD's government employment data for the time series employment models we checked the private employment data against the CBP data. The EDD data was quite close to CBP numbers for total private employment. Thus, only 15 years worth of data are used in the government model.

Population

Time series population data for San Diego County was obtained from the Population Research Unit of the California Department of Finance (DOF). DOF publishes July 1st estimates of population for all California cities and counties, including San Diego. Birth and death statistics were taken from annual publications on California Vital Statistics. These were used, with DOF population estimates, to calculate net migration. DOF's population estimates appear to be "smoothed out" or linearized between the U.S. decennial censuses so that fluctuations in population growth rates of an area may have been averaged out over the period. Consequently, population changes may not be completely accurate on a yearly basis, while the long-term population change may be quite accurate. This feature of the DOF population estimates may have made our residual estimates of net migration less accurate, contributing to the difficulty of modelling net migration into the San Diego region.

Housing Permits

Housing permit data was gathered from two commensurable sources. Security Pacific National Bank published California Construction Trends from 1974 through 1986, and Monthly Report on Building Activity in California from 1969 through 1973. Both publications yielded single family and multi-family housing permits in every California city and county

unincorporated areas, along with county-wide totals. We supplemented this series with the Greater San Diego Chamber of Commerce's data on single-family and multi-family permits for the period 1965 to 1968. To assure that the general trends between the Chamber's data and Security Pacific's were commensurable in both magnitude and direction, we compared the succeeding years' data (that is, 1969-85) for each set and found them to be quite similar.

Housing Stock

Our data on San Diego County housing stock came from estimates made by DOF for 1975 through 1985. Earlier years were estimated from building permit activity. An econometric model relating housing units added to the two previous years of building permits showed new units in any given year to equal one third of permits issued two years previously plus half of permits issued in the past year. Thus, housing stock in 1974 was estimated as 1975 housing stock minus the sum of half of 1974 housing permits and one third of 1973 housing permits. The 1970 housing unit count estimated by this "backtracking" method was very close to the U.S. census count for San Diego housing stock in that year.

Relative Home Sales Prices and Rents

Relative single family home prices were obtained from surveys of home sales prices reported annually by the Greater San Diego Chamber of Commerce. Rental prices were taken from surveys the Chamber of Commerce did for the American Chamber of Commerce Research Association (ACCRA). ACCRA publishes quarterly price data in its Cost of Living Indicators publication going back to 1968. Our time series for rental rates in San Diego covers the period 1968-85. Second and fourth quarter apartment rents were averaged to represent the average annual rent for the San Diego region. The rent data is based on a typical 2 bedroom, 1 bath, 900 square foot apartment.

Per Capita Income

Per capita income data for 1965 through 1984 was obtained from DOF. The data is adjusted to constant dollars (1967 base) using the U.S. consumer price index.

Interest Rates

Interest rate data for the modelling period was obtained from Citicorp's Citibase data base. The only time series available for the full period was the secondary market yield on FHA insured loans. Comparison of this variable with conventional home mortgage rates for more recent years showed a very close correlation between the two.

III. Definitions of Employment Sectors

At earlier stages of the research, we analyzed employment change at the 2-digit SIC level. In doing so, we defined basic (or export) sectors using location quotients, and concentrated early analyses of change on the 2-digit basic sectors. Our early analysis showed many of the individual sectors to be quite unstable over time, implying that the decisions of 1 or 2 major employers could greatly shift the direction of activity in a single year. To make the analysis more stable for forecasting purposes, we chose to aggregate up from the 2-digit SIC categories, combining sectors that are of similar characteristics (e.g. high tech manufacturing) or that have very close linkages (e.g. tourism). Aggregate sectors used include:

- o high technology manufacturing
- o other manufacturing
- o tourism
- o natural resources
- o construction
- o business services
- o transportation, communications and utilities
- o retail trade and services

The detailed industrial categories included in each aggregate sector are shown in Table D-1. Determination as to which of these sectors is an export sector and which are local serving or business serving came from the econometric models reported in Section IV of this appendix

TABLE D-1: DEFINITIONS OF THE SECTORS FORECASTED BY CREUE EMPLOYMENT MODELS

SAN DIEGO COUNTY EMPLOYMENT IN:	IS COMPOSED OF THESE INDUSTRY SECTORS
HIGH TECHNOLOGY	Chemicals, machinery except electrical, electrical and electronic equipment, transportation equipment, instruments
OTHER MANUFACTURING	All manufacturing other than high technology
EXTRACTIVE	Agricultural services, fishing, and mining
TOURISM	Restaurants, hotels, amusement & recreation places, and museums
CONSTRUCTION	All construction sectors
TRANSPORT., COMM., & UTILITIES	All transport, communications and utilities sectors except local transport
BUSINESS-SERVING	Wholesale, banking, savings and loans, and business services
LOCAL-SERVING	All retail except restaurants, local transport, finance, insurance and real estate, except business-related, and services except tourism-related
GOVERNMENT	Federal, state, and local government

SOURCE: Center for Real Estate and Urban Economics, U.C. Berkeley, 1988

and from other forms of the econometric models tried at earlier stages in the study, as mentioned in Section I above.

IV. Econometric Models of Employment and Related Factors

The time series models developed at the Center for Real Estate and Urban Economics are an analysis of the change in employment and related factors over the 21-year period, 1965 - 85, in the San Diego region (unless otherwise stated). In the course of developing the models, we identified the factors contributing to employment growth in the region, and we investigated the relationship between housing construction activity and job growth. Our analysis also examines the factors affecting housing costs, rental rates, per capita income, and population growth in the region.

Private Employment

Table D-2 illustrates the structure of the models we believe best describe the basis of employment growth and interactions among employment sectors in the San Diego region. The three basic job generating sectors in the region are high technology, other manufacturing industries, and tourism. Each of these sectors are "driven" by U.S. employment levels in these sectors of the national economy. They are "driven" in the sense that these sectors enable the San Diego region to experience continued increases in income levels and employment. These sectors expand the "economic pie" of the San Diego area, which in turn expands the array of concrete economic opportunities available to San Diego residents.

Employment in these three basic sectors also depend significantly upon employment the previous year in the same sector in San Diego County. Non high-tech manufacturing employment is tied as well to high-tech employment in San Diego, while tourism employment is linked to per capita income levels in the region.

Nonbasic private employment sectors build on one or more basic sectors. For example, employment in natural resources is tied to San Diego manufacturing employment levels. In additon, most sectors are affected by employment in that sector in the previous year. This

TABLE D-2: SUMMARY OF EMPLOYMENT TIME-SERIES MODELS OF THE SAN DIEGO ECONOMY

SAN DIEGO COUNTY EMPLOYMENT IN	DEPENDS ON: U.S. Sectors	Employment Last Year Same Sector	Other S.D. Sectors	Building Activity	Other Factors
HIGH TECHNOLOGY *	Current U.S. High Tech Jobs	County High Tech Jobs Last Year			
Adjusted R2: .9526					
Durbin Watson: 2.276					
Coefficient:	.0069	.9259			
(t statistic):	(3.7969)	(17.4876)			
OTHER MANUFACTURING *	Current U.S. Other Manuf.	County Other Manuf. Last Year	Current S.D. High Tech Jobs		
Adjusted R2: .9464					
Durbin Watson: 1.682					
Coefficient:	.0017	.6133	.1291		
(t statistic):	(3.3236)	(4.2142)	(2.4240)		
NATURAL RESOURCES		County Nat. Res. Last Year	Current S.D. Manufacturing	Last Year's S.F. Permits (sq.root)	Interest Rates^2 2 Yrs Ago
Adjusted R2: .9550					
Durbin Watson: 2.042					
Coefficient:		0.3727	0.0617	8.1200	-5.0684
(t statistic):		(1.8454)	(3.6826)	(2.2248)	(-1.8653)
TOURISM	U.S. Tourism	County Tourism Last Year			County Per Capita Income
Adjusted R2: .9914					
Durbin Watson: 2.089					
Coefficient:	0.0067	0.3848			6.3246
(t statistic):	(3.4862)	(2.9289)			(1.7583)
CONSTRUCTION			Current S.D. Manuf. + Tourism	Current Bus. Serving Growth	Last Years Housing Permits
Adjusted R2: .9548					
Durbin Watson: 1.552					
Coefficient:			0.1804	0.6391	0.1976
(t statistic):			(13.0168)	(4.4552)	(3.7110)
TRANSPORT., COMM., & UTILITIES		TCU Jobs Last Year	Current S.D. Nat. Res. Jobs		Last Years Housing Permits (sq.root)
Adjusted R2: 0.9754					
Durbin Watson: 1.702					
Coefficient:		0.7498	0.7754	9.5200	
(t statistic):		(9.7752)	(3.0676)	(2.0630)	
BUSINESS SERVING		Business Serv. Jobs Last Year	Current S.D. Other Manuf. Jobs		Interest Rates (Last Year)
Adjusted R2: 0.9821					
Durbin Watson: 1.313					
Coefficient:		0.8293	1.3396		-623.15
(t statistic):		(7.6488)	(2.8507)		(-1.2166)

TABLE D-2: SUMMARY OF EMPLOYMENT TIME-SERIES MODELS OF THE SAN DIEGO ECONOMY (Continued)

SAN DIEGO COUNTY EMPLOYMENT IN	DEPENDS ON: U.S. Sectors	Employment Last Year Same Sector	Other S.D. Sectors	Building Activity	Other Factors
RETAIL TRADE AND SERVICE			Current Tourism Jobs	Current High Tech Jobs	
Adjusted R2: 0.9955					
Durbin Watson: 2.334					
Coefficient:			2.6786	0.3847	
(t statistic):			(18.9102)	(2.29)	
GOVERNMENT		S.D. Gov't Jobs Last Year	Current Total S.D. Private Jobs		
Adjusted R2: 0.9421					
Durbin Watson: 2.245					
Coefficient:		0.8883	0.0258		
(t statistic):		(9.3581)	(1.9111)		

* In the Moderate Forecast, forecasts for these sectors are developed exogenously, based on the U.S. moderate forecasts and competitiveness coefficients derived from a shift-share analysis.

Note: Does not include self-employed persons, employed in the armed forces, or in agricultural production.

Source: Center for Real Estate and Urban Economics, March 22, 1988.

holds true for natural resources industries, transportation/communications/utilities (TCU), and the business-serving sector (banks, wholesale trade). Interactions also exist among some of the nonbasic sectors. Construction depends not only on manufacturing and tourism jobs but also on business-serving employment growth, while the TCU sector depends upon the county's natural resources sector as a customer.

Employment in several sectors is linked to building activity through housing permits in previous years. Sectors dependent on building activity levels include natural resources, construction and TCU.

Other significant factors explaining employment levels in some sectors over the 21 year modelling period include per capita income and interest rates. Per capita income growth in San Diego County is important to the expansion of the county's tourism sector. Interest rates were important factors in the overall activity of the business-serving (e.g., banks, S&Ls) and natural resource sectors.

Government Employment

The government employment model was estimated using EDD data, as described earlier. The model estimates different coefficients for factors before and after 1978, the year Proposition 13 passed. In the model, total private employment was not a significant factor in determining employment levels in 1978 and earlier. Instead, the model shows that prior to 1978, government grew at a steady level, with each year determined by last year's government employment. The coefficient for last year's government employment is smaller after 1978, and total private sector employment also becomes a significant variable in determining government employment levels after 1978.

Population

Various methods of population projections were tried. The highest adjusted R-squared comes from a "self-propelled" model, where last year's population is the only predictor of population levels in the current year. Of the models tried using employment as an explanatory

variable, the most consistent results came from using the sum of employment in the three export sectors (all manufacturing plus tourism employment) as an explanatory variable. This model (shown in Table D-3) explains slightly less of the variation in population level than does the self-propelling model, but it is based more strongly in theory. It is likely that some of the unexplained deviations using an employment based population model result from the estimation techniques used by DOF in producing annual population figures, rather than from a missing factor in explaining population levels.

Per Capita Income

Per capita income is related to high tech and tourism employment levels and to residential building activity. The coefficients for high tech and tourism jobs are virtually identical, despite differences in wage levels, showing that these two sectors are equally strong in driving income growth in the region. Building activity contributes to the spread of wealth in the region through direct job effects and through sales of goods and services.

Housing Prices and Rents

Relative housing prices are inversely correlated with the previous year's increment of new housing units (as measured by housing permits) and with the ratio of total housing to total jobs in the current year, an index of the supply/demand balance for shelter. This index shows that if job growth runs below the new stock of housing added to the region, relative home prices and rents will decline. But if job growth is rapid, or caps are placed on new residential construction, both single family home prices and apartment rents can be expected to rise significantly.

V. Multiplier-Determined Relationships

Other factors could not be successfully forecast with time series econometric models. These included total permits (capped and uncapped), single-family permits (capped and uncapped), and housing units. Econometric models calibrated for housing permits actually attained reasonable fits on the historical data (R- Squared's of between 0.75 and 0.90), and

TABLE D-3: FORECAST MODELS OF ECONOMIC FACTORS RELATED TO SAN DIEGO EMPLOYMENT

ECONOMIC FACTOR	DEPENDS ON: EMPLOYMENT LEVELS	EMPLOYMENT CHANGE	BUILDING ACTIVITY	OTHER FACTORS
TIME SERIES MODELS				
POPULATION Adjusted R2: .9743 Durbin Watson: 1.063 Coefficient: (t statistic):	S.D. Manuf. & Tourism Jobs 7.6380 (27.5522)			
PER CAPITA INCOME Adjusted R2: .9626 Durbin Watson: 2.109 Coefficient: (t statistic):	S.D. High Tech Jobs Last Year 0.0098 (3.2954)	S.D. Tourism Jobs Last Year 0.0089 (4.0348)	Last Year's Housing Permits 0.0128 (9.0164)	
RELATIVE HOUSING PRICES (Single Family Sales) Adjusted R2: .9497 Durbin Watson: 1.552 Coefficient: (t statistic):	(see other factors)		Last Year's Housing Permits -0.0059 (-4.8374)	Housing Stock/ Total Jobs -750.8646 (-4.1806)	Per Capita Income Last Year 0.3463 (3.5452)
RELATIVE HOUSING PRICES (Rents) Adjusted R2: .9268 Durbin Watson: 1.140 Coefficient: (t statistic):	(see other factors)		Housing Permits Last 2 Years -0.0015 (-3.4653)	Housing Stock/ Total Jobs -293.6826 (-2.6735)	Per Capita Income Last Year 0.1954 3.2049
MULTIPLIER GENERATED FORECASTS				
TOTAL PERMITS--UNCAPPED		Minimum of (8000) or (1.75 * Change in (Manuf. + Tourism + Bus. Serv.))		
TOTAL PERMITS--CAPPED			Minimum of (Forecast Permits) or (County Share of Forecast Permits (0.5851) + City Cap)	

TABLE D-3: FORECAST MODELS OF ECONOMIC FACTORS RELATED TO SAN DIEGO EMPLOYMENT (Continued)

ECONOMIC FACTOR	DEPENDS ON: EMPLOYMENT LEVELS	EMPLOYMENT CHANGE	BUILDING ACTIVITY	OTHER FACTORS
S.F. PERMITS--UNCAPPED			0.66 * County Share of Permits + 0.42 * City Share of Permits (0.34 * City Share for Urban Caps)	
S.F. PERMITS--CAPPED			0.66 * County Share of Permits + 0.42 * City Share of Permits (0.34 * City Share for Urban Caps)	} Calculated from Capped Housing Permits
HOUSING UNITS			Last Year's Units + 0.8 * Last Year's Permits	

Source: Center for Real Estate and Urban Economics, March 22, 1988.

gave us insight into the economic and financial determinants of construction activity. However, in predictions, the results produced were either unrealistically high or low when compared to job growth (e.g. predicting housing additions at three times the rate of job growth). The problem, we believe, stems from the fact that annual housing starts are highly unstable, and respond strongly to fluctuations in such factors as interest rates, public policy, and decisions of individual large-scale builders. These effects were either difficult to predict (e.g. interest rate fluctuations) or impossible to measure accurately in a time series for calibrating the model (e.g. decisions of large scale builders).

Instead, the forecasts for housing growth are based on the historic relationship between housing production and basic and business serving employment growth. On a long term average, between about 1.5 and 2 new housing units have been added historically for every new job in the sectors unrelated to housing growth (all manufacturing, tourism, and business serving). Our forecasts use 1.75 as a multiplier.

The use of a multiplier rather than a model calibrated through econometrics smoothes the forecasts from what is actually likely to occur. This means that the effects of caps may be higher than predicted by the model in specific years when low interest rates or pent-up demand push building activity to unusually high levels.

The City of San Diego's share of building activity and the single family share of total permits are set by historic rates. The City of San Diego receives approximately 42 percent of all building permits in unconstrained years. Approximately two- thirds of housing permits in the county outside the City of San Diego and two-fifths of housing permits inside the City of San Diego are single family units.

Under building caps, we assume the rest of the county continues granting permits as it would without caps. Therefore, only the city share of permits is adjusted by caps. The share of city permits going to single family units varies depending on whether an urban or suburban emphasis is chosen. For our employment forecasts, we report the shares based on a suburban emphasis with the caps. With an urban emphasis in the cap there would be slightly fewer

jobs in natural resources, total employment and government employment (but on the order of about 100 jobs total), and no difference in per capita income and housing price variables between the urban and suburban emphases. The lack of housing price differences under the urban versus suburban emphasis may represent a limitation in the housing price and rent models, rather than total absence of effect. We were unable to calibrate price models that accounted for both total housing production and the mix of housing. We used total housing production as the more basic of the two effects, but the mix may also affect relative home prices and rents in ways we were unable to measure.

Total housing stock could be predicted using an econometric model, based on historic housing stock and recent building permit activity. However, because building permits were not predicted using an econometric model, we chose to use a multiplier instead. We use the historical average of 80% of all permits being converted into housing units. This gives total levels of housing stock very similar to those that would be found using coefficients estimated from an econometric model.

VI. Generating Forecasts from the Models

To use these models for forecasting, forecasts of U.S. employment growth in key sectors was needed. We used forecasts prepared by the Bureau of Labor Statistics (BLS) through the year 2000. Using these forecasts, we generated three forecasts for the San Diego economy.

The low forecast for the San Diego economy assumes that the U.S. economy grows at the moderate rate forecast by the BLS, and that this affects growth in San Diego's high technology manufacturing, other manufacturing, and tourism through the models shown in Table D-2. The moderate forecast for San Diego also is based on the BLS moderate rate forecast. However, rather than using the econometric models calibrated for San Diego's export sectors, we assume the manufacturing sectors grow as in the "converging advantage" scenario described in our shift-share forecasts of the economy (see Appendix C). The tourism sector continues to grow as predicted by the econometric model, under moderate U.S. growth of that sector.

The high growth forecast for San Diego is driven by the high growth BLS forecasts for manufacturing and tourism, using the econometric models. For all three forecasts (low, medium and high), non-basic sectors grow as predicted by the econometric model, given basic employment growth.

VII. Model Limitations

The major limitation of this approach is that it describes historic relationships, and assumes these will remain unchanged in the future. While this is not an unreasonable assumption over a ten-year period, it may prove to be wrong. In both San Francisco and Contra Costa counties in the San Francisco Bay Area, for example, dramatic changes in the structure of the economic base have occurred within a decade.

In addition, the findings related to the real estate market are limited in several ways:

1. Housing prices were not found to significantly affect employment growth in any sectors. However, it is possible that under severe constraints, changes in the housing market would begin to affect basic employment growth.

2. Time series on wage levels were not available. Thus, we could not estimate effects of housing prices on wage levels or impacts of wage levels on employment growth in basic or nonbasic sectors.

3. The multipliers chosen for this analysis represent only one of many possible ways in which the housing market might respond. If the market level multiplier should in fact be 2 instead of 1.75, then the impacts of caps on housing prices would be larger indicated by our analysis. On the other hand, if caps cause the ratio of completions to permits to rise (e.g. from 80 percent to 90 percent), then effects of caps on growth and on housing prices and per capita income would be less.

4. No long term data was available on nonresidential real estate markets (e.g. industrial land prices, office rents and vacancies). Therefore, we were unable to test hypotheses on the relationship of job growth to the availability or cost of office and industrial space.

VIII. Data Listing

Tables D-4 through D-11 list the data used in the econometric analyses described in this Appendix. Tables D-12 through D-17 give detailed forecasts under alternative levels of growth and alternative building caps.

Table D-4: Aggregate Employment Time Series, San Diego, 1965-1985

Table D-5: Aggregate Employment Time Series, United States, 1965-1985

Table D-6: San Diego Population and Migration Data

Table D-7: Per Capita Income and Relative Housing Prices, San Diego County

Table D-8: Government and Private Non-Agricultural Employment, San Diego (Employment Development Department Data)

Table D-9: Housing Permits, Housing Stock and Interest Rates

Table D-10: Forecasts of U.S. Employment Growth in San Diego's Export Sectors

Table D-11: Shiftshare Converging Forecasts of San Diego Manufacturing Growth, 1986-1995

Table D-12: Employment Forecasts and Related Factors, High Level of Growth, Baseline and Alternative Housing Caps

Table D-13: Summary Comparison of Growth Rate Forecasts under High Growth

Table D-14: Employment Forecasts and Related Factors, Moderate Level of Growth, Baseline and Alternative Housing Caps

Table D-15: Summary Comparison of Growth Rate Forecasts under Moderate Growth

Table D-16: Employment Forecasts and Related Factors, Low Level of Growth, Baseline and Alternative Housing Cap

Table D-17: Summary Comparisons of Growth Rate Forecasts under Low Growth

TABLE D-4: AGGREGATE EMPLOYMENT TIME SERIES, SAN DIEGO, 1965-1985

Year	Natural Resources	Total Manuf.	High-Tech Manuf.	Other Manuf.	Business Serving	Construc- tion	Retail Trade/Serv	TCU	Tourism
1965	2491	50864	34839	15225	21685	14925	75653	12756	20626
1966	2485	56936	40143	16793	22504	14135	80463	13896	22326
1967	2353	63377	45519	17858	25043	13497	85954	15648	24376
1968	2306	66317	49135	17182	27317	16637	94348	16345	26749
1969	2570	72264	53216	19048	29385	18973	104472	16650	28859
1970	2696	73302	53723	19579	31003	19982	113373	17307	32299
1971	2704	67496	47667	19829	32116	19802	116704	18202	34142
1972	2708	64820	44473	20347	33986	24256	124155	19520	37151
1973	2673	66900	45987	20913	37588	25133	135062	19599	40848
1974	2898	79236	54400	24836	41916	26181	140571	19119	45968
1975	2802	77918	55499	22419	40610	20646	141954	19882	41996
1976	3213	78281	54376	23905	46485	22787	153642	20058	44761
1977	4135	83736	56618	27118	52629	28210	159360	21895	48495
1978	4599	91369	62581	28788	60741	31588	182591	23936	57974
1979	4608	93876	64361	29515	73880	40556	200099	26505	62407
1980	4924	107293	76103	31190	80451	37653	205326	26839	65439
1981	4892	109023	77248	31775	81955	33630	211600	27094	64305
1982	4802	115242	84010	31232	80794	29357	227212	26811	68616
1983	5062	108514	79872	28642	81005	27562	225592	25845	71739
1984	6616	116058	85038	31020	91850	39861	240730	26539	75134
1985	6736	121178	88003	33175	103739	47226	256503	28453	81456

Source: Computed by CREUE from County Business Patterns data.

TABLE D-5: AGGREGATE EMPLOYMENT TIME SERIES, UNITED STATES, 1965-1985

Year	Natural Resources	Total Manuf.	High-Tech Manuf.	Other Manuf.	Business Serving	Construc- tion	Retail Trade/Serv	TCU	Tourism
1965	751748	17595093	6196823	11399078	5531696	2823961	15066945	2878993	2863229
1966	771298	18722021	6893042	11828979	5867983	3054375	15938876	3019184	3018307
1967	768861	19436806	7355929	12080877	6154688	2962733	16688560	3168518	3188799
1968	775583	19719112	7451120	12267992	6487971	3115958	17548171	3234378	3349378
1969	786038	20193979	7613065	12580914	6722269	3189325	18262985	3335680	3493184
1970	789741	19761548	7323669	12437879	7047082	3197382	18896150	3463631	3674664
1971	782026	18414007	6532620	11881387	6977681	3133884	19084191	3431511	3744489
1972	801472	18696367	6622621	12073746	7206513	3398188	19951803	3526759	3959182
1973	813230	20089654	6998583	13091071	7845304	3941058	21002896	3625744	4261000
1974	875526	20325435	7154478	13170957	8125719	3970394	21307028	3728904	4456348
1975	915086	18372127	6592207	11779920	7929367	3322200	21372302	3601286	4510259
1976	988685	18950709	6661948	12288761	8291627	3444842	22192600	3657724	4924665
1977	1072626	19661861	7043100	12618761	8654324	3580007	22944973	3780242	5224137
1978	1094268	20630571	7465266	13165305	9332215	4130469	24872900	4005045	5853903
1979	1231096	21733169	7978712	13754457	10075868	4609475	26426149	4316421	6212890
1980	1284815	21164697	7955785	13208912	10298005	4473010	26398195	4354327	6312539
1981	1412504	20396528	7724794	12671734	10504365	4276757	26935312	4347641	6388102
1982	1516211	19534858	7468899	12065959	10689693	3940774	22520859	4369720	6524121
1983	1297887	18233379	6829182	11404197	10703689	3764938	22369671	4293947	6638572
1984	1331166	19325352	7305633	12019719	11490182	4171763	23883461	4413386	7026536
1985	1325094	19433606	7432103	12001503	12228152	4479533	30693636	4548276	7369866

Source: Computed by CREUE from County Business Patterns data.

TABLE D-6: SAN DIEGO POPULATION AND MIGRATION DATA

YEAR	Population July 1	Births	Deaths	Net Migration January 1
1965	1147500	21,821	8,426	14850
1966	1190200	20,894	9,125	12805
1967	1230300	21,442	8,864	29631
1968	1281100	22,038	9,400	32812
1969	1335800	23,931	9,979	40112
1970	1367200	24,568	10,006	29098
1971	1382500	22,613	10,379	8788
1972	1429100	21,880	10,919	18716
1973	1480800	21,735	11,275	38189
1974	1521400	23,091	11,551	35690
1975	1594100	23,623	11,476	45110
1976	1654300	25,079	11,586	54303
1977	1711300	26,647	12,094	45187
1978	1773200	27,114	12,547	44897
1979	1831800	29,361	12,694	45433
1980	1874200	30,931	13,616	33833
1981	1926300	32,415	13,633	30185
1982	1973100	33,795	13,815	30668
1983	2015100	34,657	14,057	24420
1984	2070900	35,709	14,885	28300
1985	2128100	37,200	15,255	35676

Source: California Department of Finance

TABLE D-7: PER CAPITA INCOME AND RELATIVE HOUSING PRICES, SAN DIEGO COUNTY

Year	Real Per Capita Income	U.S. Consumer Price Index (1967 = 100)	San Diego Relative Housing Prices	
			Home Sales (1967 = 100)	Rents (1968 = 100)
1965	3173	94.5	99.01	
1966	3306	97.2	99.50	
1967	3354	100	100.00	
1968	3541	104.2	107.60	100.00
1969	3635	109.8	119.01	111.25
1970	3770	116.3	127.57	120.26
1971	3729	121.3	137.14	99.75
1972	3875	125.3	149.07	114.05
1973	3860	133.1	164.73	125.85
1974	3798	147.7	191.91	131.45
1975	3700	161.2	217.24	158.17
1976	3873	170.5	249.17	183.97
1977	3994	181.5	310.72	206.65
1978	4175	195.4	401.76	224.67
1979	4183	217.4	494.56	241.77
1980	4090	246.8	556.38	267.56
1981	4088	272.4	604.79	279.68
1982	4065	289.1	592.69	292.11
1983	4148	298.4	592.10	313.86
1984	4331	311.1	624.67	344.93
1985		322.2	642.78	410.19

Source: CREUE calculations using data from the California Department of Finance, the U.S. Bureau of the Census, Statistical Abstract of the United States, and the Greater San Diego Chamber of Commerce.

TABLE D-8: GOVERNMENT AND PRIVATE NON-AGRICULTURAL EMPLOYMENT
SAN DIEGO (EMPLOYMENT DEVELOPMENT DEPARTMENT DATA)

Year	Total Employment	Government	Agricultural Production	Private Nonagr.
1972	436.4	110.1	7.8	318.5
1973	465.1	114	8.5	342.6
1974	481.1	118.6	9.1	353.4
1975	490.2	128.6	9.5	352.1
1976	513.2	132.2	9.5	371.5
1977	556.7	138.7	10.1	407.9
1978	612.3	140.9	10.7	460.7
1979	649.8	138.1	10.9	500.8
1980	663.8	141.2	11.2	511.4
1981	679.9	141.9	11.3	526.7
1982	676.4	139.6	11.3	525.5
1983	691	139.5	11.2	540.3
1984	745.8	141.8	10.6	593.4
1985	795.7	145.7	10.2	639.8
1986	833.4	150	10	673.4
1987		149.9		669.7

Source: California Employment Development Department, 1988.

TABLE D-9: HOUSING PERMITS, HOUSING STOCK AND INTEREST RATES

Year	San Diego County Housing Permits: Single Family	Multi Family	Total	San Diego County Estimated Housing Stock	Interest Rates (FHA Secondary Yields)
1965	4917	4482	9399		6.56
1966	4294	3166	7460		7.19
1967	6494	6162	12656	403392	8.25
1968	9512	12148	21660	412814	9.02
1969	10651	14271	24922	428984	7.73
1970	9736	13126	22862	449758	7.53
1971	17188	20335	37443	478557	8.23
1972	14912	24193	39105	498695	9.50
1973	12590	11669	24259	532559	9.18
1974	7655	8469	16124	558806	8.83
1975	8754	5951	14705	570823	8.72
1976	15654	13756	29410	589936	9.72
1977	18304	18189	36493	609449	10.94
1978	13812	15042	28854	642485	13.44
1979	9794	9244	19038	669250	16.31
1980	6495	6625	13120	720346	15.31
1981	3963	4885	8848	731718	13.11
1982	3823	3868	7691	744655	13.82
1983	10855	9901	20756	752369	12.24
1984	11032	19585	30617	764451	9.91
1985	13086	25186	38272	787194	9.70

Source: Security Pacific Bank, Greater San Diego Chamber of Commerce, Citicorp data base, and CREUE estimates.

TABLE D-10: FORECASTS OF U.S. EMPLOYMENT GROWTH IN SAN DIEGO'S EXPORT SECTORS

	BLS Moderate Growth Forecasts U.S. Employment			BLS Moderate Growth Forecasts U.S. Employment		
Year	High Tech Manuf'g	Other Manuf'g	Tourism	High Tech Manuf'g	Other Manuf'g	Tourism
1985	7432103	12001503	7369866	7432103	12001503	7369866
1986	7265957	11927096	7610287	7265957	11927096	7610287
1987	7368550	12018271	7916429	7341313	12115733	7916429
1988	7287746	11855833	8185967	7378537	12207956	8185967
1989	7043520	11534103	8413078	7483854	12324282	8413078
1990	7257785	11589646	8578627	7936898	12589422	8578627
1991	7196048	11622133	8838182	7989556	12789586	8838182
1992	7095271	11503711	9049487	7896042	12757099	9049487
1993	7088915	11469128	9234170	7885147	12739283	9234170
1994	7077112	11461792	9433828	7860634	12744523	9433828
1995	7105258	11464936	9585235	7690856	12578942	9585235

Source: U.S. Bureau of Labor Statistics, Employment Forecasts through the Year 2000, unpublished computer print-out.

TABLE D-11: SHIFTSHARE CONVERGING FORECASTS OF SAN DIEGO MANUFACTURING GROWTH, 1986-1995

Year	High Technology Manufacturing	Other Manufacturing	Total Manufacturing
1986	89526	33479	123005
1987	91049	33783	124833
1988	92573	34088	126660
1989	94096	34392	128488
1990	95619	34696	130315
1991	96269	34905	131174
1992	96919	35115	132034
1993	97569	35324	132893
1994	98219	35534	133753
1995	98869	35743	134612

Source: CREUE, from forecast methodolgy described in Appendix C.

TABLE D-12: EMPLOYMENT FORECASTS AND RELATED FACTORS, HIGH LEVEL OF GROWTH
BASELINE AND ALTERNTIVE HOUSING CAPS

SECTORS AND OTHER CATEGORIES	BASELINE			12000 CAP			8000 CAP			4500 CAP		
	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995
INDUSTRY SECTORS												
High Technology	88,003	98,379	115,813	88,003	98,379	115,813	88,003	98,379	115,813	88,003	98,379	115,813
Other Manufacturing	33,175	36,869	44,053	33,175	36,869	44,053	33,175	36,869	44,053	33,175	36,869	44,053
Tourism	81,456	95,175	110,945	81,456	95,175	110,924	81,456	95,175	110,379	81,456	95,002	109,880
Business Serving	103,739	135,135	181,654	103,739	135,135	181,654	103,739	135,135	181,654	103,739	135,135	181,654
Natural Resources	6,736	8,447	11,238	6,736	8,447	11,238	6,736	8,447	11,177	6,736	8,390	11,087
Construction	47,226	45,050	56,249	47,226	45,050	56,219	47,226	45,050	55,331	47,226	44,597	54,549
Transport/Utilities	28,453	35,151	43,221	28,453	35,151	43,210	28,453	35,151	42,807	28,453	34,993	42,227
Retail Trade/Services	256,503	298,804	347,754	256,503	298,804	347,696	256,503	298,804	346,237	256,503	298,341	344,900
PRIVATE EMPLOYMENT	645,291	753,009	910,926	645,291	753,009	910,806	645,291	753,009	907,451	645,291	751,705	904,162
Government	145,700	151,888	169,892	145,700	151,888	169,884	145,700	151,888	169,658	145,700	151,854	169,342
TOTAL NONAGRICULTURAL	790,991	904,897	1,080,818	790,991	904,897	1,080,690	790,991	904,897	1,077,109	790,991	903,559	1,073,504
POPULATION	2,128,100	2,371,677	2,680,165	2,128,100	2,371,677	2,679,999	2,128,100	2,371,677	2,675,840	2,128,100	2,370,359	2,672,026
HOUSING UNITS	787,194	890,727	995,516	787,194	890,727	995,119	787,194	890,727	983,697	787,194	889,019	968,330
RELATIVE HOME PRICES (1985 = 100)												
Single Family Sales	100.00	132.31	154.32	100.00	132.31	154.28	100.00	132.31	156.02	100.00	134.31	158.14
Multifamily Rents	100.00	107.07	125.95	100.00	107.24	125.95	100.00	107.07	126.89	100.00	108.04	128.06
REAL PER CAPITA INCOME (1967 $s)	4,524	4,572	5,063	4,524	4,572	5,061	4,524	4,572	5,005	4,524	4,545	4,956

Source: Center for Real Estate and Urban Economics, March 1988.

TABLE D-13: SUMMARY COMPARISON OF GROWTH RATE FORECASTS UNDER HIGH GROWTH

SECTORS AND OTHER CATEGORIES	PERCENT CHANGE, 1985-1995 BASELINE	12000 CAP	8000 CAP	4500 CAP
INDUSTRY SECTORS				
High Technology	31.60%	31.60%	31.60%	31.60%
Other Manufacturing	32.79%	32.79%	32.79%	32.79%
Tourism	36.20%	36.18%	35.51%	34.89%
Business Serving	75.11%	75.11%	75.11%	75.11%
Natural Resources	66.83%	66.83%	65.93%	64.59%
Construction	19.11%	19.04%	17.16%	15.51%
Transport/Utilities	51.90%	51.86%	50.45%	48.41%
Retail Trade/Services	35.58%	35.55%	34.98%	34.46%
PRIVATE EMPLOYMENT	41.17%	41.15%	40.63%	40.12%
Government	16.60%	16.60%	16.44%	16.23%
TOTAL NONAGRICULTURAL	36.64%	36.62%	36.17%	35.72%
POPULATION	25.94%	25.93%	25.74%	25.56%
HOUSING UNITS	26.46%	26.41%	24.96%	23.01%
RELATIVE HOME PRICES (1985 = 100)				
Single Family Sales	54.32%	54.28%	56.02%	58.14%
Multifamily Rents	25.95%	25.95%	26.89%	28.06%
REAL PER CAPITA INCOME	11.91%	11.87%	10.63%	9.55%

Source: Center for Real Estate and Urban Economics, March 1986.

TABLE D-14: EMPLOYMENT FORECASTS AND RELATED FACTORS, MODERATE LEVEL OF GROWTH
BASELINE AND ALTERNATIVE HOUSING CAPS

SECTORS AND OTHER CATEGORIES	BASELINE			8000 CAP			4500 CAP		
	1985	1990	1995	1985	1990	1995	1985	1990	199
INDUSTRY SECTORS									
High Technology	88,003	95,619	98,869	88,003	95,619	98,869	88,003	95,619	98,8
Other Manufacturing	33,175	34,696	35,743	33,175	34,696	35,743	33,175	34,696	35,7
Tourism	81,456	95,295	109,293	81,456	95,295	107,088	81,456	95,130	107,0
Business Serving	103,739	131,246	147,572	103,739	131,246	147,572	103,739	131,246	147,5
Natural Resources	6,736	8,156	8,442	6,736	8,156	8,442	6,736	8,120	8,4
Construction	47,226	42,410	43,256	47,226	42,410	43,256	47,226	41,975	43,2
Transport/Utilities	28,453	35,097	36,407	28,453	35,097	36,407	28,453	34,969	36,2
Retail Trade/Services	256,503	298,065	330,904	256,503	298,065	330,904	256,503	297,621	330,7
PRIVATE EMPLOYMENT	645,291	740,584	808,283	645,291	740,584	808,283	645,291	739,396	807,9
Government	145,700	151,700	162,409	145,700	151,700	162,409	145,700	151,670	162,3
TOTAL NONAGRICULTURAL	790,991	892,284	970,692	790,991	892,284	970,692	790,991	891,066	970,2
POPULATION	2,128,100	2,334,926	2,457,821	2,128,100	2,334,926	2,457,821	2,128,100	2,333,662	2,457,5
HOUSING UNITS	787,194	892,629	944,134	787,194	892,629	944,134	787,194	890,991	939,1
RELATIVE HOME PRICES (1985 = 100)									
Single Family Sales	100.00	131.01	142.61	100.00	131.01	142.61	100.00	132.93	142.5
Multifamily Rents	100.00	106.47	116.23	100.00	106.47	116.23	100.00	107.24	116.4
REAL PER CAPITA INCOME (1967 $s)	4,524	4,577	4,655	4,524	4,577	4,655	4,524	4,551	4,6

Source: Center for Real Estate and Urban Economics, March 1988.

TABLE D-15: SUMMARY COMPARISON OF GROWTH RATE FORECASTS UNDER MODERATE GROWTH

SECTORS AND OTHER CATEGORIES	PERCENT CHANGE, 1985-1995		
	BASELINE	8000 CAP	4500 CAP
INDUSTRY SECTORS			
High Technology	12.3%	12.3%	12.3%
Other Manufacturing	7.7%	7.7%	7.7%
Tourism	34.2%	31.5%	31.4%
Business Serving	42.3%	42.3%	42.3%
Natural Resources	25.3%	25.3%	25.1%
Construction	-8.4%	-8.4%	-8.4%
Transport/Utilities	28.0%	28.0%	27.4%
Retail Trade/Services	29.0%	29.0%	29.0%
PRIVATE EMPLOYMENT	25.3%	25.3%	25.2%
Government	11.5%	11.5%	11.4%
TOTAL NONAGRICULTURAL	22.7%	22.7%	22.7%
POPULATION	15.5%	15.5%	15.5%
HOUSING UNITS	19.9%	19.9%	19.3%
RELATIVE HOME PRICES (1985 = 100)			
Single Family Sales	42.6%	42.6%	43.0%
Multifamily Rents	16.2%	16.2%	16.5%
REAL PER CAPITA INCOME	2.9%	2.9%	2.9%

Source: Center for Real Estate and Urban Economics, March 1988.

TABLE D-16: EMPLOYMENT FORECASTS AND RELATED FACTORS, LOW LEVEL OF GROWTH
BASELINE AND ALTERNATIVE HOUSING CAP

SECTORS AND OTHER CATEGORIES	BASELINE			4500 CAP		
	1985	1990	1995	1985	1990	1995
INDUSTRY SECTORS						
High Technology	88,003	98,521	88,385	88,003	98,521	88,385
Other Manufacturing	33,175	32,708	31,424	33,175	32,708	31,424
Tourism	81,456	94,742	105,733	81,456	94,664	105,732
Business Serving	103,739	126,210	128,819	103,739	126,210	128,819
Natural Resources	6,736	7,512	6,968	6,736	7,471	6,968
Construction	47,226	39,127	37,803	47,226	38,922	37,803
Transport/Utilities	28,453	34,061	32,547	28,453	33,956	32,515
Retail Trade/Services	256,503	294,621	323,240	256,503	294,412	323,237
PRIVATE EMPLOYMENT	645,291	719,503	754,919	645,291	718,867	754,882
Government	145,700	150,652	157,567	145,700	150,634	157,547
TOTAL NONAGRICULTURAL	790,991	870,155	912,486	790,991	869,501	912,429
POPULATION	2,128,100	2,276,581	2,334,401	2,128,100	2,275,985	2,334,391
HOUSING UNITS	787,194	888,458	928,458	787,194	887,686	919,686
RELATIVE HOME PRICES (1985 = 100)						
Single Family Sales	100.00	128.63	132.06	100.00	129.51	132.17
Multifamily Rents	100.00	104.37	106.64	100.00	104.72	106.70
REAL PER CAPITA INCOME (1967 $s)	4,500	4,505	4,523	4,500	4,492	4,523

Source: Center for Real Estate and Urban Economics, March 1988.

TABLE D-17: SUMMARY COMPARISON OF GROWTH FORECASTS UNDER LOW GROWTH

SECTORS AND OTHER CATEGORIES	PERCENT CHANGE, 1985-1995	
	BASELINE	4500 CAP
INDUSTRY SECTORS		
High Technology	0.4%	0.4%
Other Manufacturing	-5.3%	-5.3%
Tourism	29.8%	29.8%
Business Serving	24.2%	24.2%
Natural Resources	3.4%	3.4%
Construction	-20.0%	-20.0%
Transport/Utilities	14.4%	14.3%
Retail Trade/Services	26.8%	26.8%
PRIVATE EMPLOYMENT	17.0%	17.0%
Government	8.1%	8.1%
TOTAL NONAGRICULTURAL	15.4%	15.4%
POPULATION	9.7%	9.7%
HOUSING UNITS	16.9%	16.8%
RELATIVE HOME PRICES (1985 = 100)		
Single Family Sales	32.1%	32.2%
Multifamily Rents	8.6%	8.7%
REAL PER CAPITA INCOME	0.5%	0.5%

Source: Center for Real Estate and Urban Economics, March 1988.

APPENDIX E

ANALYSIS OF CHANGE IN SAN DIEGO'S OCCUPATIONAL MIX

One issue brought up early in discussions with the CACGD and city staff was the impact of employment growth and changes in employment levels on job opportunities, as indicated by occupational mix. Our findings are addressed only briefly in the main text of the report, because there appears to be little effect of caps on occupational mix. The detailed analysis behind that finding is given in this Appendix.

The occupational mix analysis of San Diego performed by CREUE involved an examination of the distribution of jobs among seven broad occupational groups and analysis of how this distribution may change across the eight industry group aggregations analyzed in Chapter 4 and Appendices C and D. The seven occupational groups, those utilized in the California Occupational Employment Survey (CA-OES; see References), are as follows: Managers and Administrators, Professional and Technical workers, Clerical and Administrative Support workers, Service workers, Agriculture and Forestry workers, and Production and Related workers. The eight industry groups were created by CREUE by aggregating sixty-five two digit Standard Industrial Classification codes (SICs). These groups are: Extractive (referred to in the main report as natural resources); construction; other manufacturing; high technology; transportation, communications, and utilities; business serving; local serving; and tourism. (The corresponding SICs are listed in Table E-1).

Change in the occupational mix of a region's economy may result from change in its industry mix, change in the distribution of jobs across occupational groups within a stable industry mix (e.g., change in within-industry occupational mix), or from a combination of both trends. For example, in regards to a changing industry mix, manufacturing industries have historically had much higher proportions of their work force employed in production and related jobs than financial industries such as Banking and Insurance. The latter industries, in turn, have had higher proportions of their work force in clerical and administrative support

TABLE E-1: San Diego Occupational Distribution Estimates, 1979, 1982, and 1985, by 2-digit SICs

		CALIFORNIA OCCUPATIONAL DISTRIBUTION								SAN DIEGO CBP EMPLOYMENT			1979 EST. OCCUPATIONAL DISTRIBUTION						
		Total	Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	TOTAL 1979	1982	1985	Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related
(1)	(2) (3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
EXTRACTIVE INDUSTRY	07 Agricultural Services	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3169	3176	5386	0	0	0	0	0	0	0
	09 Fishing, hunting & trapping	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	999	811	623	0	0	0	0	0	0	0
	10 Metal Mining	1170	17.3%	22.0%	1.9%	17.2%	1.4%	0.6%	39.7%	0	0	100	0	0	0	0	0	0	0
	13 Oil & Gas Extraction	42993	5.5%	19.9%	1.5%	12.0%	0.3%	0.0%	60.8%	123	196	232	7	24	2	15	0	0	75
	14 Nonmetallic minerals, except fuels	6843	4.6%	4.1%	3.0%	9.1%	0.8%	0.3%	78.2%	408	398	432	19	17	12	37	3	1	319
TOTAL		51006								4699	4581	6773	26	41	14	52	4	1	394
CONSTRUCTION	15 Gen'l contractors & operative bldrs	112509	11.8%	6.8%	1.9%	14.1%	1.6%	0.9%	62.9%	11505	8100	12522	1358	787	214	1627	183	98	7237
	16 Heavy construction contractors	62945	7.3%	10.3%	0.5%	9.5%	0.4%	0.3%	71.7%	3307	3210	3112	241	340	17	314	12	11	2371
	17 Special trade contractors	257138	4.7%	6.2%	2.5%	10.8%	0.5%	0.2%	75.1%	25630	18587	31516	1196	1600	630	2771	139	40	19255
TOTAL		432592								40442	29897	47150	2794	2728	861	4713	334	149	28863
OTHER MANUFACTURING	20 Food & kindred products	177638	4.6%	3.7%	4.4%	9.6%	2.8%	1.5%	73.3%	6398	6380	3076	292	238	282	617	180	97	4691
	22 Textile mill products	11257	5.0%	3.4%	5.7%	13.8%	1.1%	0.0%	70.9%	551	478	620	28	19	31	76	6	0	391
	23 Apparel & other textile products	98661	3.8%	2.9%	2.9%	11.9%	0.8%	0.0%	77.6%	3869	3143	3054	147	112	113	461	32	0	3004
	24 Lumber & wood products	47044	4.5%	1.8%	2.3%	6.6%	1.3%	9.1%	74.4%	1166	770	1177	52	21	27	77	15	106	868
	25 Furniture & fixtures	50059	4.2%	2.0%	3.5%	9.8%	1.2%	0.0%	79.3%	1393	1094	1540	59	27	48	137	17	0	1105
	26 Paper & allied products	35811	5.1%	3.8%	4.7%	10.7%	0.7%	0.0%	75.0%	478	381	565	24	18	23	51	3	0	358
	27 Printing & publishing	124361	5.4%	11.4%	10.0%	22.9%	1.2%	0.0%	49.1%	6379	7842	9476	345	728	637	1460	78	2	3131
	29 Petroleum & coal products	33644	6.5%	30.4%	2.4%	14.6%	1.6%	0.0%	44.6%	121	135	122	8	37	3	18	2	0	54
	30 Rubber & miscel. plastics products	61195	5.3%	4.2%	2.9%	11.2%	1.2%	0.0%	75.1%	1144	1774	2213	60	48	34	128	14	0	859
	31 Leather & leather products	9400	3.7%	1.3%	2.8%	9.5%	1.0%	0.0%	81.6%	491	571	347	18	7	14	47	5	0	401
	32 Stone, clay, & glass products	48438	5.3%	3.8%	2.6%	9.7%	1.4%	0.1%	77.2%	1963	1765	2592	103	75	51	190	27	1	1516
	33 Primary metal industries	41938	6.7%	7.0%	2.6%	12.0%	1.6%	0.0%	70.1%	389	243	502	26	27	10	47	6	0	273
	34 Fabricated metal products	131680	5.9%	7.6%	2.8%	9.8%	1.1%	0.0%	72.8%	3759	4333	4466	223	285	105	370	42	1	2735
	39 Miscel. manufacturing industries	40038	7.3%	8.3%	5.7%	14.6%	1.1%	0.0%	63.0%	3123	3519	3113	227	260	178	455	35	1	1967
TOTAL		911164								31224	32428	32863	1612	1901	1556	4133	462	209	21352
HIGH TECH INDUSTRY	28 Chemicals & allied products	64367	8.2%	15.9%	9.2%	18.3%	1.9%	0.1%	46.5%	1854	1964	1815	152	294	170	339	36	2	862
	35 Machinery, except electrical	208812	9.0%	21.2%	3.2%	16.1%	0.9%	0.0%	49.5%	14092	14544	16004	1267	2989	453	2274	128	1	6980
	36 Electric & electronic equipment	340409	8.3%	29.2%	1.9%	15.2%	1.3%	0.0%	44.1%	19313	28107	29710	1608	5638	360	2930	255	2	8520
	37 Transportation equipment	248209	6.8%	32.2%	0.8%	14.2%	2.0%	0.0%	43.9%	19483	27626	27381	1322	6278	162	2770	398	2	8550
	38 Instruments & related products	100380	8.0%	24.6%	3.6%	17.9%	1.6%	0.0%	44.3%	6496	8250	9980	519	1595	233	1165	106	2	2876
TOTAL		962177								61238	80491	84890	4868	16795	1379	9478	922	9	27788
TRANSPORT., COMMUNICA., & UTIL.	42 Trucking & warehousing	129213	4.9%	1.3%	3.2%	18.8%	1.2%	0.5%	70.1%	3314	3130	3827	162	42	105	624	39	18	2324
	44 Water transportation	21214	9.2%	7.9%	3.2%	20.5%	3.7%	0.0%	55.5%	433	536	931	40	34	14	89	16	0	240
	45 Transportation by air	70370	4.9%	5.3%	2.9%	30.5%	18.4%	0.0%	38.0%	4330	3700	3946	212	229	126	1321	797	0	1644
	47 Transportation services	45708	6.5%	3.4%	42.1%	36.3%	1.5%	0.0%	10.2%	1739	1998	2358	113	59	733	632	25	0	177
	48 Communication	169782	5.4%	20.4%	5.4%	41.6%	0.4%	0.0%	26.8%	10884	10419	10868	589	2219	593	4532	39	0	2912
	49 Electric, gas, & sanitary services	90426	5.2%	17.9%	0.6%	26.2%	1.2%	0.1%	48.7%	5000	5426	5852	262	895	32	1311	62	4	2434
TOTAL		526713								25700	25209	27782	1378	3478	1601	8509	978	22	9733
BUSINESS SERVING	50 Wholesale trade-durable goods	409006	9.8%	8.5%	22.6%	30.8%	0.6%	0.0%	27.6%	16567	17035	21701	1625	1411	3750	5108	105	4	4565
	51 Wholesale trade-nondurable goods	273696	8.1%	4.9%	24.3%	26.7%	2.4%	1.7%	32.0%	9999	10748	12819	806	494	2428	2665	236	174	3196
	60 Banking	213452	9.3%	19.0%	3.9%	67.3%	0.4%	0.0%	0.1%	8002	9972	9281	745	1518	314	5385	29	0	12
	61 Credit agencies other than banks	120781	12.3%	17.0%	7.4%	62.0%	0.6%	0.0%	0.6%	7382	9321	11719	910	1258	546	4579	44	3	42
	73 Business Services	614468	7.3%	18.9%	5.9%	30.1%	21.2%	0.4%	16.2%	31637	33294	47549	2308	5972	1854	9514	6717	140	5134
TOTAL		1222397								57020	63335	81368	4769	9242	5142	22143	7026	316	8383

TABLE E-1 (page 2)

			CALIFORNIA OCCUPATIONAL DISTRIBUTION									SAN DIEGO CBP EMPLOYMENT			1979 EST. OCCUPATIONAL DISTRIBUT'N						
			Total	Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related		TOTAL 1979	1982	1985	Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
LOCAL	41	Local & interurban passngr transit	27824	3.2%	20.3%	1.0%	13.3%	2.6%	0.0%	59.7%		1634	1896	2157	52	331	16	217	43	0	976
SERVING	52	Bldg materials & garden supplies	72623	9.7%	3.5%	51.0%	15.9%	1.1%	2.4%	16.4%		4314	4365	4416	420	151	2200	685	48	102	707
	53	General merchandise stores	220957	4.7%	3.6%	64.0%	16.0%	5.4%	0.0%	6.3%		16506	16719	16806	775	595	10564	2636	893	0	1044
	54	Food stores	251926	5.4%	2.3%	55.1%	6.4%	17.9%	0.0%	12.9%		15365	17836	19275	828	353	8471	976	2753	7	1977
	55	Auto dealers & service stations	207741	7.4%	1.2%	32.6%	13.6%	1.2%	0.0%	44.1%		16680	15594	18748	1232	197	5444	2262	194	1	7350
	56	Apparel & accessory stores	115461	9.3%	2.9%	72.9%	9.3%	1.3%	0.0%	4.4%		6573	7896	8554	611	189	4789	612	84	0	287
	57	Furniture & home furnishings store	88996	9.0%	5.7%	44.4%	18.9%	1.2%	0.0%	20.7%		5714	5115	6962	515	324	2538	1081	69	0	1186
	59	Miscellaneous retail	239238	8.8%	8.1%	56.9%	12.5%	4.2%	0.1%	9.5%		15702	17041	18499	1377	1269	8937	1964	662	8	1486
	62	Security, commodity, brokers & srvc	30500	8.1%	7.6%	41.5%	42.5%	0.2%	0.0%	0.2%		1049	1667	2291	85	79	435	446	2	0	2
	63	Insurance carriers	115981	6.5%	18.3%	17.6%	56.8%	0.4%	0.0%	0.4%		4789	5149	5692	314	878	841	2718	19	2	17
	64	Insurance agts, brokers & service	63962	6.4%	15.6%	21.5%	55.7%	0.5%	0.0%	0.2%		3020	3331	3760	194	471	651	1682	16	1	6
	65	Real estate	142410	20.2%	5.6%	14.2%	26.7%	14.5%	6.5%	12.3%		12937	13856	15165	2613	723	1842	3458	1875	835	1589
	67	Holding & other investment offices	13793	19.8%	20.2%	8.5%	41.5%	5.4%	1.5%	3.3%		831	1745	2117	164	168	70	345	45	12	27
	72	Personal Services	106455	2.6%	12.8%	11.4%	12.5%	33.9%	0.4%	26.3%		8456	8704	9565	221	1084	967	1056	2869	33	2224
	75	Auto repair services & garages	96930	3.2%	1.0%	13.0%	10.5%	1.7%	0.0%	70.5%		6273	6394	7492	198	66	818	656	108	3	4426
	76	Miscellaneous repair services	56960	3.1%	3.7%	10.2%	17.3%	0.6%	0.1%	65.0%		2761	3044	3612	87	101	283	477	17	2	1793
	78	Motion pictures	78930	9.5%	37.5%	9.1%	14.5%	14.1%	0.2%	15.2%		1307	1454	1543	124	491	119	190	194	2	198
	80	Health services	330016	3.3%	37.4%	0.8%	24.8%	30.0%	0.3%	3.5%		33282	44811	47067	1097	12449	256	8246	9974	84	1176
	81	Legal services	82400	1.5%	42.2%	0.0%	55.2%	0.8%	0.2%	0.1%		3560	4885	5752	52	1503	0	1964	30	8	4
	82	Educational Services	783381	4.5%	61.5%	0.3%	19.1%	9.5%	1.1%	4.1%		4547	6643	8154	205	2795	12	870	430	49	187
	83	Social services	117610	7.2%	36.9%	2.0%	20.1%	22.9%	0.8%	10.1%		7708	8489	9942	553	2845	157	1549	1762	62	781
	86	Membership organizations	130683	9.2%	35.9%	2.8%	30.4%	16.7%	2.0%	3.1%		8003	9064	11865	733	2873	225	2430	1335	162	246
	89	Miscellaneous services	163138	7.1%	62.3%	1.3%	25.1%	1.1%	0.0%	3.1%		10018	11682	15157	711	6240	133	2513	105	3	312
TOTAL			3537815									191029	217380	244591	13159	36176	49769	39032	23517	1376	28001
TOURISM	58	Eating & drinking places	674054	5.4%	0.9%	6.4%	2.0%	83.7%	0.0%	1.6%		40423	46924	55607	2193	347	2576	814	33823	3	667
	70	Hotels & other lodging places	141293	5.6%	2.9%	4.2%	12.8%	67.4%	1.1%	6.0%		14483	13637	15413	811	422	613	1853	9760	156	867
	79	Amusement & recreation services	107463	5.1%	21.7%	7.6%	8.5%	42.3%	6.2%	8.6%		7126	7703	10111	362	1549	541	609	3012	441	612
	84	Museums, botanical, zoological grdn	3607	7.2%	24.8%	17.5%	16.2%	19.4%	7.5%	7.4%		339	352	325	24	84	59	55	66	25	25
TOTAL			926417									62371	68616	81456	3390	2402	3790	3331	46661	626	2171

TABLE E-1 (page 3)

(1)	(2) (3)	1982 EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs (22)	Prof and Tech'l (23)	Sales and Related (24)	Clerical & Admi'v Support (25)	Service (26)	Ag & Forestry (27)	Product'n and Related (28)	1985 EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs (29)	Prof and Tech'l (30)	Sales and Related (31)	Clerical & Admi'v Support (32)	Service (33)	Ag & Forestry (34)	Product'n and Related (35)
EXTRACTIVE	07 Agricultural Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INDUSTRY	09 Fishing, hunting & trapping	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10 Metal Mining	0	0	0	0	0	0	0	17	22	2	17	1	1	40
	13 Oil & Gas Extraction	11	3	3	23	1	0	119	13	46	4	28	1	0	141
	14 Nonmetallic minerals, except fuels	18	12	12	36	3	1	311	20	18	13	39	4	1	338
TOTAL		29	15	15	60	4	1	430	50	86	18	84	6	2	518
CONSTRUCTION	15 Gen'l contractors & operative bldrs	956	151	151	1146	129	69	5095	1478	857	233	1771	199	107	7877
	16 Heavy construction contractors	234	17	17	305	12	11	2302	227	320	16	295	12	10	2231
	17 Special trade contractors	867	457	457	2010	100	29	13964	1470	1967	774	3408	170	49	23677
TOTAL		2057	624	624	3460	241	109	21360	3175	3145	1024	5474	381	167	33785
OTHER	20 Food & kindred products	291	281	281	615	179	97	4678	140	114	136	297	86	47	2255
MANUFACTURING	22 Textile mill products	24	27	27	66	5	0	339	31	21	35	85	7	0	440
	23 Apparel & other textile products	119	92	92	375	26	0	2440	116	89	89	364	25	0	2371
	24 Lumber & wood products	35	18	18	51	10	70	573	53	21	27	78	15	107	876
	25 Furniture & fixtures	46	38	38	108	13	0	868	65	30	53	151	18	0	1222
	26 Paper & allied products	19	18	18	41	3	0	286	29	22	27	60	4	0	424
	27 Printing & publishing	424	783	783	1794	96	2	3849	513	1081	946	2168	115	2	4650
	29 Petroleum & coal products	9	3	3	20	2	0	60	8	37	3	18	2	0	54
	30 Rubber & miscel. plastics products	94	52	52	199	22	0	1333	117	93	65	248	27	0	1662
	31 Leather & leather products	21	16	16	54	6	0	466	13	5	10	33	3	0	283
	32 Stone, clay, & glass products	93	46	46	171	24	1	1363	136	99	68	250	36	2	2001
	33 Primary metal industries	16	6	6	29	4	0	170	33	35	13	60	8	0	352
	34 Fabricated metal products	257	120	120	426	48	1	3153	264	338	124	439	49	1	3250
	39 Miscel. manufacturing industries	256	201	201	513	40	1	2216	226	259	178	454	35	1	1960
TOTAL		1703	1702	1702	4461	477	173	21793	1744	2244	1774	4706	432	161	21801
HIGH TECH	28 Chemicals & allied products	161	180	180	359	38	2	913	148	288	166	331	35	2	844
INDUSTRY	35 Machinery, except electrical	1308	468	468	2347	132	1	7204	1439	3394	515	2583	145	1	7927
	36 Electric & electronic equipment	2340	524	524	4264	371	3	12399	2474	8674	554	4507	392	3	13106
	37 Transportation equipment	1875	230	230	3928	564	3	12124	1858	8824	228	3893	559	3	12016
	38 Instruments & related products	659	296	296	1480	135	2	3653	797	2450	358	1790	163	3	4419
TOTAL		6342	1698	1698	12377	1239	11	36293	6716	23630	1821	13105	1294	12	38313
TRANSPORT.,	42 Trucking & warehousing	153	99	99	589	37	17	2195	187	49	121	720	45	21	2684
COMMUNICA.,	44 Water transportation	49	17	17	110	20	0	297	85	74	30	191	34	0	517
& UTIL.	45 Transportation by air	181	107	107	1129	681	0	1405	194	209	115	1204	727	0	1498
	47 Transportation services	130	842	842	726	29	0	204	153	80	993	857	35	0	240
	48 Communication	564	567	567	4338	37	0	2788	589	2215	592	4525	39	0	2908
	49 Electric, gas, & sanitary services	284	35	35	1423	67	4	2641	306	1047	37	1535	73	4	2849
TOTAL		1362	1667	1667	8316	871	22	9531	1514	3674	1888	9032	951	26	10696
BUSINESS	50 Wholesale trade-durable goods	1670	3856	3856	5252	108	4	4694	2128	1849	4912	6690	137	5	5980
SERVING	51 Wholesale trade-nondurable goods	867	2610	2610	2865	254	187	3435	1034	633	3113	3417	302	223	4097
	60 Banking	928	391	391	6719	36	0	15	864	1760	364	6245	33	0	14
	61 Credit agencies other than banks	1149	689	689	5782	56	3	53	1444	1997	867	7270	70	4	66
	73 Business Services	2429	1951	1951	10012	7069	147	5402	3468	8975	2787	14298	10095	210	7716
TOTAL		5373	5642	5642	25369	7414	337	8905	6811	13366	7131	31230	10501	437	11893

TABLE E-1 (page 4)

			1982 EST. OCCUPATIONAL DISTRIBUT'N							1985 EST. OCCUPATIONAL DISTRIBUT'N						
			Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related
(1)	(2)	(3)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)
LOCAL SERVING	41	Local & interurban passngr transit	60	19	19	252	49	0	1132	68	437	21	286	56	0	1288
	52	Bldg materials & garden supplies	425	2226	2226	693	48	104	715	430	155	2252	701	49	105	724
	53	General merchandise stores	785	10700	10700	2670	904	0	1057	789	606	10756	2684	909	0	1063
	54	Food stores	961	9834	9834	1133	3196	8	2295	1039	443	10627	1224	3454	8	2480
	55	Auto dealers & service stations	1152	5090	5090	2115	181	1	6871	1385	222	6119	2543	218	1	8261
	56	Apparel & accessory stores	735	5753	5753	735	101	0	345	796	246	6232	796	110	0	374
	57	Furniture & home furnishings store	461	2272	2272	968	62	0	1061	628	395	3093	1317	84	0	1445
	59	Miscellaneous retail	1494	9699	9699	2131	718	9	1612	1622	1495	10529	2314	780	10	1750
	62	Security, commodity, brokers & srvc	135	691	691	708	3	0	4	185	173	950	973	5	0	5
	63	Insurance carriers	337	904	904	2922	21	2	18	373	1044	1000	3231	23	2	20
	64	Insurance agts, brokers & service	213	718	718	1855	18	1	7	241	587	810	2094	20	1	8
	65	Real estate	2799	1973	1973	3704	2009	895	1702	3063	848	2160	4053	2198	979	1863
	67	Holding & other investment offices	345	148	148	725	94	25	57	418	427	179	879	114	31	69
	72	Personal Services	228	996	996	1087	2953	34	2290	250	1227	1094	1195	3246	37	2516
	75	Auto repair services & garages	202	833	833	668	110	3	4511	236	78	977	783	129	3	5296
	76	Miscellaneous repair services	95	312	312	526	19	3	1977	113	133	370	624	23	3	2346
	78	Motion pictures	138	132	132	211	205	2	220	146	579	140	224	217	3	234
	80	Health services	1477	345	345	11102	13429	113	1583	1551	17605	363	11661	14105	119	1663
	81	Legal services	71	0	0	2695	41	11	5	83	2428	0	3174	48	12	6
	82	Educational Services	299	17	17	1271	628	71	273	367	5013	21	1560	771	88	335
	83	Social services	609	173	173	1706	1940	68	860	713	3669	202	1998	2272	80	1007
	86	Membership organizations	830	255	255	2752	1512	183	278	1086	4260	333	3602	1979	240	364
	89	Miscellaneous services	829	155	155	2931	123	4	364	1076	9441	201	3802	159	5	472
TOTAL			14679	53245	53245	45560	28364	1536	29240	16660	51509	58429	51719	30968	1727	33579
TOURISM	58	Eating & drinking places	2546	2991	2991	944	39263	4	774	3017	477	3544	1119	46528	4	917
	70	Hotels & other lodging places	763	577	577	1745	9190	147	817	863	449	652	1972	10387	166	923
	79	Amusement & recreation services	391	585	585	658	3255	477	662	513	2198	768	864	4273	625	868
	84	Museums, botanical, zoological grdn	25	62	62	57	68	26	26	23	81	57	53	63	24	24
TOTAL			3726	4215	4215	3405	51777	654	2278	4417	3205	5022	4008	61251	820	2733

Source: Derived by Center for Real Estate and Urban Economics from County Business Patterns--California, 1972, 1982, 1985, and Occupational Employment in the State of California . All Industries, summarized by 2-digit SIC, 1983-1985, State of California Employment Development Department, Employment Data and Research Division.

occupations. If a region's manufacturing industry is declining while its financial industry is growing, the region's occupational mix will show change in the form of a lower proportion of production workers and a higher proportion of clerical workers.

Under the process of within-industry change in occupational mix, an industry's total employment may stay the same but still contribute to change in a region's overall occupational mix. This can result if the organization of work within the industry is changing due to the introduction of new technology, new products and services, or new approaches to the delivery of services. For example, the operator occupational group within the telephone industry has experienced significant declines due to the introduction of automated directory information equipment. At the same time, there has been significant growth in the salesworker occupation group within the telephone industry due not only to the practice of leasing telephone equipment being replaced by the practice of purchasing telephone equipment, but also to the proliferation of new communications products and services to be sold.

The CREUE occupational mix analysis has focused on that change which may occur from change in the industry mix of San Diego. This focus is taken for two reasons. First, the industry-mix effect is the major type of change that would occur due to caps. In other words, the within-industry changes in occupational mix will not be different under caps, while to the extent that building caps affect the industry mix within San Diego County, they may also change the region's occupational mix. A second reason for this approach is that within-industry change, while of interest, is much more speculative for the future and thus more difficult to forecast.

The process of forecasting the occupational mix for San Diego involved several steps. First, because no complete data source on the occupational distribution for San Diego by detailed industrial category (2-digit SIC codes) is available, San Diego's occupational distribution had to be estimated. This was done using the occupational distribution of the State of California from the 1983-1985 CA-OES and applying it to the industry mix of San Diego under the assumption that San Diego's occupational distribution was similar to that of

the whole state. Thus, the occupational distribution for each of sixty-three two digit SICs within San Diego's seven industry groups was pulled from the CA- OES data, as shown in columns 5 - 11 of Table E-1 (the CA-OES did not have occupational data for the agricultural component of the natural resources category, SICs 07 and 09). Then, under the assumption that the distribution of the seven broad occupational groups did not change significantly from the late 1970s to the mid-1980s, the percentages of California employment in each of the two-digit SICS of each of the seven occupational groups was multiplied by the corresponding total two-digit SIC employment for San Diego from County Business Patterns data for the years 1979, 1982, and 1985 (see columns 12 - 14). This process generated estimated numerical occupational distributions for San Diego for the eight industry groups and for the SICs within each industry group for 1979, 1982, and 1985 (see Table E-2). At this point, the extractive industry was dropped from the analyses because CA-OES occupational data for SIC 07--Agriculture Services and SIC 09--Fishing, Hunting and Trapping was missing.

The estimated numerical occupational distributions for the remaining seven industry groups were then converted into percentage distributions to examine how stable they had been over the 1979-1985 period. Table E-3 shows that San Diego's industry mix changed little over the 1979-1985 period. As a result, there was little change in San Diego's occupational mix when examined by major occupational groups. (Note the "TOTAL" rows in Table E- 2.) The greatest changes occurred in the Professional and Technical workers group--which grew by slightly more than one percent, and in the production and related workers group--which declined by nearly one and a half percent.

The forecasts of San Diego's occupational distribution in 1995 under the different growth scenarios were created by applying the 1985 percent distribution of the major occupational groups within the seven industry groups to the projected 1995 employment in these seven industry groups. As can be seen from the Growth Projections Tables (Tables E-4 to E-9), little change in the occupational distribution is forecast to occur between 1985 and 1995.

TABLE E-2: San Diego Occupational Distribution Summary, 1979, 1982, and 1985

		SAN DIEGO CBP EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1979	40442	2794	2728	861	4713	334	149	28863	6.91%	6.74%	2.13%	11.65%	0.83%	0.37%	71.37%	100.00%
	1982	29897	2057	2045	624	3460	241	109	21360	6.88%	6.84%	2.09%	11.57%	0.81%	0.36%	71.45%	100.00%
	1985	47150	3175	3145	1024	5474	381	167	33785	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURIN	1979	31224	1612	1901	1556	4133	462	209	21352	5.16%	6.09%	4.98%	13.24%	1.48%	0.67%	68.38%	100.00%
	1982	32428	1703	2118	1702	4461	477	173	21793	5.25%	6.53%	5.25%	13.76%	1.47%	0.53%	67.21%	100.00%
	1985	32863	1744	2244	1774	4706	432	161	21801	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1979	61238	4868	16795	1379	9478	922	9	27788	7.95%	27.43%	2.25%	15.48%	1.51%	0.01%	45.38%	100.00%
	1982	80491	6342	22530	1698	12377	1239	11	36293	7.88%	27.99%	2.11%	15.38%	1.54%	0.01%	45.09%	100.00%
	1985	84890	6716	23630	1821	13105	1294	12	38313	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., COMMUNICA., UTIL.	1979	25700	1378	3478	1601	8509	978	22	9733	5.36%	13.53%	6.23%	33.11%	3.81%	0.09%	37.87%	100.00%
	1982	25209	1362	3441	1667	8316	871	22	9531	5.40%	13.65%	6.61%	32.99%	3.46%	0.09%	37.81%	100.00%
	1985	27782	1514	3674	1888	9032	951	26	10696	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1979	73587	6393	10653	8893	27250	7130	320	12948	8.69%	14.48%	12.08%	37.03%	9.69%	0.43%	17.60%	100.00%
	1982	80370	7043	11747	9498	30621	7521	341	13599	8.76%	14.62%	11.82%	38.10%	9.36%	0.42%	16.92%	100.00%
	1985	103069	8939	15215	12043	37920	10638	442	17872	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1979	191029	13159	36176	49769	39032	23517	1376	28001	6.89%	18.94%	26.05%	20.43%	12.31%	0.72%	14.66%	100.00%
	1982	217380	14679	44756	53245	45560	28364	1536	29240	6.75%	20.59%	24.49%	20.96%	13.05%	0.71%	13.45%	100.00%
	1985	244591	16660	51509	58429	51719	30968	1727	33579	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1979	62371	3390	2402	3790	3331	46661	626	2171	5.44%	3.85%	6.08%	5.34%	74.81%	1.00%	3.48%	100.00%
	1982	68616	3726	2562	4215	3405	51777	654	2278	5.43%	3.73%	6.14%	4.96%	75.46%	0.95%	3.32%	100.00%
	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1979	485591	33595	74133	67848	96446	80003	2711	130856	6.92%	15.27%	13.97%	19.86%	16.48%	0.56%	26.95%	100.00%
	1982	534391	36913	89199	72649	108200	90491	2845	134095	6.91%	16.69%	13.59%	20.25%	16.93%	0.53%	25.09%	100.00%
	1985	621801	43165	102622	82000	125965	105916	3354	158779	6.94%	16.50%	13.19%	20.26%	17.03%	0.54%	25.54%	100.00%

Source: Derived by Center for Real Estate and Urban Economics from County Business Patterns--California, 1972, 1982, 1985, and Occupational Employment in the State of California, All Industries, summarized by 2-digit SIC, 1983-1985, State of California Employment Development Department, Employment Data and Research Division.

TABLE E-3: San Diego's Changing Industrial Mix, 1979-1985

INDUSTRY	EMPLOYMENT			INDUSTRY AS % OF TOTAL EMPLOYMENT	
	1979	1985	% Change	1979	1985
Construction	40442	47150	16.59%	8.33%	7.58%
Other Manufacturing	31224	32863	5.25%	6.43%	5.29%
High Technology	61238	84890	38.62%	12.61%	13.65%
Transportation, Communications & Utilities	25700	27782	8.10%	5.29%	4.47%
Business Serving	73587	103069	40.06%	15.15%	16.58%
Local Serving	191029	244591	28.04%	39.34%	39.34%
Tourism	62371	81456	30.60%	12.84%	13.10%
TOTAL*	485591	621801	28.05%	100.00%	100.00%

* Excludes the Extractive industry.
SOURCE: County Business Patterns, California, 1979 and 1985.

NOTE: The following SICs were aggregated by CREUE into the major industry groups:
Construction: SICs 15-17.
Other Manufacturing: SICs 20, 22-27, 29-34, 39.
High Technology: SICs 28, 36-38.
Transportation, Communication & Utilities: SICs 42,44,45, 47-49.
Business Serving: SICs 50, 51, 60, 61, 73.
Local Serving: SICs 41, 52-57, 59, 62-65, 67, 72, 75, 76, 78, 80-83, 86, 89.
Tourism: SICs 58, 70, 79, 84.

TABLE E-4: Occupational Distribution for San Diego, High Growth Forecast (Baseline Case)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	56249	3787	3751	1221	6531	455	199	40305	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	44053	2338	3009	2378	6309	580	215	29225	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1888	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	115813	9163	32238	2484	17878	1765	16	52269	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	43221	2356	5716	2937	14052	1480	40	16641	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10707	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	181654	15754	26815	21225	66833	18749	779	31499	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	347754	23687	73234	83073	73533	44029	2455	47742	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	110945	6016	4365	6839	5459	83426	1117	3722	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	899689	63101	149128	120158	190595	150484	4821	221402	7.01%	16.58%	13.36%	21.18%	16.73%	0.54%	24.61%	100.00%
CHANGE	85-95	261134	18762	42918	35103	61112	42915	1378	58946	7.18%	16.44%	13.44%	23.40%	16.43%	0.53%	22.57%	100.00%

SOURCE: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985,
State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

TABLE E-5: Occupational Distribution for San Diego, High Growth Forecast (8,000 Unit Cap)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	55331	3725	3690	1201	6424	447	195	39647	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	44053	2338	3009	2378	6309	580	215	29225	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1889	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	115813	9163	32238	2484	17878	1765	16	52269	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	42807	2333	5661	2909	13917	1466	40	16481	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10797	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	181654	15754	26815	21225	66833	18749	779	31499	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	346237	23584	72915	82711	73212	43837	2444	47534	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	110379	5985	4343	6805	5431	83000	1112	3703	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	896274	62882	148671	119713	190005	149845	4801	220357	7.02%	16.59%	13.36%	21.20%	16.72%	0.54%	24.59%	100.00%
CHANGE	85-95	257719	18543	42460	34658	60522	42276	1358	57902	7.20%	16.48%	13.45%	23.48%	16.40%	0.53%	22.47%	100.00%

SOURCE: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985,
State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

TABLE E-6: Occupational Distribution for San Diego, High Growth Forecast (4,500 Unit CAp)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	54549	3673	3638	1184	6334	441	193	39087	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	44053	2338	3009	2378	6309	580	215	29225	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1888	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	115813	9163	32238	2484	17878	1765	16	52269	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	42227	2302	5584	2869	13728	1446	39	16258	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10707	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	181654	15754	26815	21225	66833	18749	779	31499	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	344900	23493	72633	82392	72930	43668	2435	47350	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	109880	5958	4323	6774	5407	82625	1107	3686	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	893076	62680	148241	119306	189418	149274	4783	219373	7.02%	16.60%	13.36%	21.21%	16.71%	0.54%	24.56%	100.00%
CHANGE	85-95	254521	18341	42030	34252	59936	41705	1340	56918	7.21%	16.51%	13.46%	23.55%	16.39%	0.53%	22.36%	100.00%

SOURCE: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985,
State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

TABLE E-7: Occupational Distribution for San Diego, Moderate Growth Forecast (Baseline Case)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	43256	2912	2885	939	5022	350	153	30995	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	35743	1897	2441	1929	5119	470	175	23712	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1888	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	98869	7822	27521	2121	15262	1507	14	44622	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	36407	1984	4814	2474	11836	1247	34	14017	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10707	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	147572	12798	21784	17243	54294	15231	632	25589	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	330904	22539	69686	79048	69970	41896	2336	45429	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	107088	5807	4214	6602	5270	80525	1079	3592	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	799839	55760	133345	110356	166773	141226	4422	187956	6.97%	16.67%	13.80%	20.85%	17.66%	0.55%	23.50%	100.00%
CHANGE	85-95	161284	11421	27134	25301	37290	33658	979	25500	7.08%	16.82%	15.69%	23.12%	20.87%	0.61%	15.81%	100.00%

SOURCE: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985,
State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

TABLE E-8: Occupational Distribution for San Diego, Moderate Growth Forecast (4,500 Unit Cap)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Adms'rs	Prof and Tech'l	Sales and Related	Clerical & Adm'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Adms'rs	Prof and Tech'l	Sales and Related	Clerical & Adm'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	43249	2912	2884	939	5022	350	153	30990	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	35743	1897	2441	1929	5119	470	175	23712	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1888	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	98869	7822	27521	2121	15262	1507	14	44622	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	36240	1975	4792	2463	11782	1241	34	13953	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10707	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	147572	12798	21784	17243	54294	15231	632	25589	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	330792	22532	69662	79021	69947	41882	2335	45413	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	107047	5805	4212	6599	5268	80494	1078	3591	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	799512	55741	133298	110315	166693	141176	4421	187870	6.97%	16.67%	13.80%	20.85%	17.66%	0.55%	23.50%	100.00%
CHANGE	85-95	160957	11402	27087	25260	37210	33607	977	25414	7.08%	16.83%	15.69%	23.12%	20.88%	0.61%	15.79%	100.00%

Source: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985, State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

TABLE E-9: Occupational Distribution for San Diego, Low Growth Forecast (Baseline Case)

		SAN DIEGO EMPLOYMENT	EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	PERCENT EST. OCCUPATIONAL DISTRIBUT'N: Managers and Admins'rs	Prof and Tech'l	Sales and Related	Clerical & Admi'v Support	Service	Ag & Forestry	Product'n and Related	Total
CONSTRUCTION	1985	47226	3180	3150	1025	5483	382	167	33839	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
	1995	37803	2545	2521	821	4389	306	134	27087	6.73%	6.67%	2.17%	11.61%	0.81%	0.35%	71.65%	100.00%
OTHER MANUFACTURING	1985	33175	1761	2266	1791	4751	437	162	22008	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
	1995	31424	1668	2146	1696	4500	414	154	20847	5.31%	6.83%	5.40%	14.32%	1.32%	0.49%	66.34%	100.00%
HIGH TECH INDUSTRY	1985	88003	6962	24496	1888	13585	1341	12	39718	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
	1995	88385	6993	24603	1896	13644	1347	12	39890	7.91%	27.84%	2.15%	15.44%	1.52%	0.01%	45.13%	100.00%
TRANSPORT., & UTIL.	1985	28453	1551	3763	1933	9250	974	26	10955	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
	1995	32515	1772	4300	2209	10571	1114	30	12519	5.45%	13.22%	6.80%	32.51%	3.42%	0.09%	38.50%	100.00%
BUSINESS SERVING	1985	103739	8997	15314	12121	38167	10707	445	17989	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
	1995	128819	11172	19016	15052	47394	13296	552	22337	8.67%	14.76%	11.68%	36.79%	10.32%	0.43%	17.34%	100.00%
LOCAL SERVING	1985	256503	17471	54018	61275	54238	32476	1811	35214	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
	1995	323237	22017	68071	77217	68349	40925	2282	44376	6.81%	21.06%	23.89%	21.15%	12.66%	0.71%	13.73%	100.00%
TOURISM	1985	81456	4417	3205	5022	4008	61251	820	2733	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
	1995	105732	5733	4160	6518	5203	79506	1065	3547	5.42%	3.93%	6.16%	4.92%	75.20%	1.01%	3.35%	100.00%
TOTAL	1985	638555	44339	106211	85055	129483	107569	3443	162456	6.94%	16.63%	13.32%	20.28%	16.85%	0.54%	25.44%	100.00%
	1995	747915	51900	124817	105409	154051	136907	4229	170603	6.94%	16.69%	14.09%	20.60%	18.31%	0.57%	22.81%	100.00%
CHANGE	85-95	109360	7561	18607	20354	24568	29338	785	8148	6.91%	17.01%	18.61%	22.46%	26.83%	0.72%	7.45%	100.00%

Source: Derived from Center for Real Estate and Urban Economics calculations based on County Business Patterns-California, 1985, State of California Employment Development Department, Employment Data and Research Division.
Civilian government category total employment estimated by CK from EDD data, occupational distributions are from CA Occupational Employment Survey.

As previously stated, this occupational forecast has focused on change in the occupational mix which may result from change in the industry mix of San Diego. A complete within-industry driven occupational mix analysis was not performed because comprehensive detailed forecasts of such change are not available. However, a targeted analysis of certain industries and certain occupations that can provide some clues to what within-industry driven occupational change may occur was performed by CREUE. The direction for this targeted analysis was taken from national analyses of forecasted occupational change performed by the Bureau of Labor Statistics. (See, for example, George T. Silvestri and John M. Lukasiewicz, 1987, and Occupational Outlook Quarterly, 1985).

Three service industries are projected to account for one-third of new jobs generated between 1982 and 1995. These industries are health services, retail trade, and miscellaneous business services. Table E-10 highlights sources of change in the distribution of services jobs based on nationally forecasted trends, and estimates San Diego's 1985 employment in a few specific service occupations. For example, job growth in health services is not expected to continue at its previously high levels. A reduction is expected in the number of hospital workers overall, while shifts in staffing patterns are expected that will eliminate positions for licensed practical nurses or nursing aides. We estimate that these last two job categories accounted for more than 7,000 jobs in San Diego in 1985.

Miscellaneous business services is expected to have the greatest business service job growth. Management, consulting, and public relations jobs form the largest subcategory of Miscellaneous business services, accounting for one quarter of its national total employment. However, separating out this category for San Diego was not possible. The second largest subcategory for which significant job growth is expected is detective agencies and protective services. Security guard firms employ the majority of the workers in this category. In San Diego, it was possible to estimate that the guards and watch guards job category employed almost 4,000 workers in 1985.

TABLE E-10: Sources of Change in the Distribution of Services Jobs:
Based on Nationally Forecasted Trends

			CALIFORNIA OCCUPATIONAL DISTRIBUTION [1]								1985 EST. OCCUPATIONAL DISTRIBUT'N SAN DIEGO								DIRECTION OF CHANGE FOR SPECIFIC OCCUPATIONS & 1985 EST. SAN DIEGO EMPLOYMENT						
			Total	Admins'rs	Tech'l	Related	Support	Service	Forestry	Related	1985	Mgrs & Admins'rs	Prof'l & Tech'l	Sales & Related	Clerical & Admi'v Support	Service	Agric. & Forestry	Productn Related	Growing Guards & Watch Guards	Declining Lic. Prac. Nurses	Declining Nursing aides Orderlies & Attendts	Growing Home Health Aides	Growing Cooks & Chefs#	Growing Waiters & Waitresses	Combined Food Prep. & Svc Wkrs
BUSINESS ** SERVING	73	Business Services	614468	7.3%	18.9%	5.9%	38.1%	21.2%	0.4%	16.2%	47549	3468	8973	2787	14298	10895	218	7716	3947						
		TOTAL	1222397								103969	8939	15215	12043	37928	18658	442	17872							
LOCAL SERVING	80	Health services	338816	3.3%	37.4%	8.8%	24.8%	38.8%	0.3%	3.5%	47867	1551	17695	363	11661	14185	119	1663		1836	5468	377			
		TOTAL	3357815								244591	16668	51289	58429	51719	38968	1727	33579							
TOURISM **	58	Eating & drinking places	674854	5.4%	8.9%	6.4%	2.8%	83.7%	0.8%	1.6%	55587	3817	477	3544	1117	46528	4	917					7548	12811	8174
		TOTAL	926417								91456	4417	3285	5822	4888	61251	929	2733							

635927
827944
172017

This job category is a combination of restaurant cooks, institution & cafeteria cooks, specialty fast food cooks & short order cooks titles.

Source: [1] Occupational Employment in the State of California, All Industries, Summarized by 2-Digit SIC, 1983-1
[2] County Business Patterns--California. Table 2. Counties--Employees, Payroll, and Establishments, by Industry: 1979, 1982, 1985.
[3] "Spotlight on SERVICES: Where the Jobs Are," Occupational Outlook Quarterly, Summer 1985, pp. 2-25.

** Categories defined for this research. See Appendix B.

Within retail trade, the "eating and drinking" industry is a major supplier of jobs and of future job growth. The number of jobs in the occupation groups of cooks and chefs, waiters and waitresses, and combined food preparation and service workers is expected to continue growing. In San Diego, these groups accounted for over 27,500 jobs. It may be of interest to note that, nationally, more than half of the jobs in the eating and drinking industry are part-time, and that the 1984 hourly earnings of this industry were $4.35, compared to $5.94 for all of retail trade, and to $8.96 for all industries combined.

Table E-11 was prepared to give some indication of the changing occupational mix's impact on black, Hispanic, and female labor force participants. Analysts Silvestri and Lukasiewicz of the Bureau of Labor Statistics have analyzed which occupations (of those with 25,000 or more employees nation-wide) have the highest expected growth rates and compared these to those having the greatest concentrations of blacks and Hispanics. They found that "...both blacks and Hispanics account for a greater proportion of persons employed in the occupations that are projected to decline or grow more slowly than in those occupations that are projected to increase rapidly" (Silvestri and Lukasiewicz, 1987, p. 62). Further, the declining or slow- growth occupations are those generally requiring the least amount of education or training in contrast to the fastest growing occupations that require the most education and training (with the service worker cluster being a notable exception). Women, on the other hand, currently make up relatively large proportions of the workers in those occupations that require the most education and training and that are expected to grow more rapidly than total employment.

Table E-12 replicates a table in which Silvestri and Lukasiewicz presented their findings and adds to it data for San Diego. It should be noted that the data for San Diego are not strictly comparable to that of the nation because the most recent occupational data available for San Diego is for 1980, compared to 1986 for the nation. While ackowledging this limitation, the data in Table E-12 are perhaps most dramatic in their implications for the Hispanic labor force. From the table, it can be seen that total employment in all occupations

TABLE E-11: Occupational Distribution of Blacks, Hispanics, and Women in Selected Categories in San Diego: 1980

OCCUPATION	TOTAL MALE	TOTAL FEMALE	GRAND TOTAL	BLACK TOTAL MALE	BLACK TOTAL FEMALE	BLACK GRAND TOTAL	HISPANIC TOTAL MALE	HISPANIC TOTAL FEMALE	HISPANIC GRAND TOTAL	PERCENT OF TOTAL EMPLOYMENT HISPANIC	BLACK	WOMEN
Total, all occupations	425496	330904	756400	16737	16377	33114	59676	39426	99102	13.1%	4.4%	43.7%
Natural scientists & computer scientists	2336	600	2936	39	11	50	79	28	107	3.6%	1.7%	20.4%
Health diagnosing & treating occupations	5709	713	6422	65	13	78	226	85	311	4.8%	1.2%	11.1%
Technicians	18783	10796	29579	504	680	1184	1224	774	1998	6.8%	4.0%	36.5%
Engineers, architects, & surveyors	16157	1197	17354	191	40	231	650	88	738	4.3%	1.3%	6.9%
Service workers	45902	60144	106046	3121	4197	7318	8898	9992	18890	17.8%	6.9%	56.7%
Marketing & salesworkers[1]	46346	43695	90041	1162	1222	2384	3434	4165	7599	8.4%	2.6%	48.5%
Managerial & management-related workers[2]	57791	32258	90049	1389	1115	2504	4113	2187	6300	7.0%	2.8%	35.8%
Other professional workers[3]	12939	9514	22453	405	255	660	945	826	1771	7.9%	2.9%	42.4%
Construction trades & extractive workers	37835	885	38720	1056	53	1109	5487	84	5571	14.4%	2.9%	2.3%
Teachers, librarians, & counselors	13775	22185	35960	495	1195	1690	1075	1603	2678	7.4%	4.7%	61.7%
Mechanics & repairers	26015	1231	27246	1147	107	1254	3431	243	3674	13.5%	4.6%	4.5%
Administrative, support, including clerical	27999	100244	128243	1828	4977	6805	3163	10284	13447	10.5%	5.3%	78.2%
Transportation & material moving workers	19657	2342	21999	1299	183	1482	3254	237	3491	15.9%	6.7%	10.6%
Helpers & laborers	20647	4541	25188	1047	251	1298	5241	1125	6366	25.3%	5.2%	18.0%
Precision production & plant systems occup.	22970	8118	31088	900	523	1423	3625	1656	5281	17.0%	4.6%	26.1%
Machine setters & operators[4]	24539	16366	40905	1599	950	2549	5751	4345	10096	24.7%	6.2%	40.0%
Assemblers & other handwork occupations	8990	5618	14608	567	338	905	2126	1344	3470	23.8%	6.2%	38.5%
Agriculture, forestry, & fishing workers	17422	3256	20678	322	107	429	8655	1217	9872	47.7%	2.1%	15.7%

[1] Used the "Sales Occupations" category for San Diego.
[2] Used the "Executive, Administrative, and Managerial Occuptions" category for San Diego.
[3] This is a combination of "Social Scientists & Urban Planners", "Social, recreation, & religious workers", & "Writers, Artitst, Entertainers, & Atheletes" for San Diego.
[4] This is the "Machine operators, assemblers, and inspectors" category for San Diego.

Source: Table 219, "Detailed Occupation of Employed Persons by Sex, Race, and Spanish Origin: 1980", 1980 Census of Housing and Population, U.S. Bureau of the Census, Department of Commerce.

TABLE E-12: Nationally Projected Occupational 1986-2000 Growth Rates:

Percent of National Total Employment in 1986 Accounted for by Blacks, Hispanics, and Women
And Percent of San Diego Total Employment in 1988 Accounted for by Blacks, Hispanics, and Women

OCCUPATION	Projected percent change, 1986-2000	Percent of total employment					
		BLACK		HISPANIC		WOMEN	
		1986 Nation	1980 San Diego	1986 Nation	1980 San Diego	1986 Nation	1980 San Diego
Total, all occupations	19	10%	4%	7%	13%	44%	44%
Natural scientists & computer scientists	46	6%	2%	3%	4%	31%	20%
Health diagnosing & treating occupations	42	6%	1%	3%	5%	67%	11%
Technicians	38	8%	4%	4%	7%	47%	36%
Engineers, architects, & surveyors	32	4%	1%	3%	4%	7%	7%
Service workers	31	17%	7%	9%	18%	61%	57%
Marketing & salesworkers	30	6%	3%	5%	8%	48%	49%
Managerial & management-related workers	29	6%	3%	4%	7%	43%	36%
Other professional workers	26	7%	3%	4%	8%	43%	42%
Construction trades & extractive workers	18	7%	3%	8%	14%	2%	2%
Teachers, librarians, & counselors	16	9%	5%	3%	7%	68%	62%
Mechanics & repairers	15	7%	5%	7%	13%	3%	5%
Administrative, support, including clerical	11	11%	5%	6%	10%	80%	78%
Transportation & material moving workers	10	14%	7%	8%	16%	9%	11%
Helpers & laborers	6	17%	5%	11%	25%	16%	18%
Precision production & plant systems occup.	4	9%	5%	9%	17%	23%	26%
Machine setters & operators	-4	16%	6%	13%	25%	42%	40%
Assemblers & other handwork occupations	-4	13%	6%	11%	24%	38%	38%
Agriculture, forestry, & fishing workers	-5	7%	2%	10%	48%	16%	16%

Sources: Silvestri, George T. and John M. Lukasiewicz, "A look at occupational employment trends to the year 2000," Monthly Labor Review, September, 1987.

Table 219, "Detailed Occupation of Employed Persons by Sex, Race, and Spanish Origin: 1980," 1980 Census of Housing and Population, U.S. Bureau of the Census, Department of Commerce.

is expected to grow by nineteen percent, and that the percent of blacks employed in San Diego is less than half that nation-wide, while the percent of Hispanics employed in San Diego is almost twice that nation-wide. But while Hispanics are thirteen percent of San Diego's total employment, they are found in much higher proportions in those occupations with the lowest or declining projected growth rates. Of those occupations listed in the table which are projected to grow faster than the average for all occupations, there is only one category that Hispanics are found to be relatively concentrated--service workers.

These findings have long term implications for employment opportunities within the San Diego region. The relationship of these findings to building caps or other growth controls is less direct. Because residential caps have little effect on the employment mix, growth controls alone will not change job opportunities for minorities. However, to the extent that these controls affect the housing market differentially, by raising prices in minority areas or by limiting residential opportunities close to jobs, they may make access to housing particularly difficult for groups whose access to jobs is weakening because of changing within-industry employment mix. Whatever the outcome chosen by the City of San Diego for growth management, the long term job issues faced by minority groups in San Diego will need to be directly addressed by employment training and education programs.

References

Occupational Employment in Manufacturing Industries and Hospitals, California, 1983, California Employment Development Department, Employment Data and Research Division.

Occupational Employment in Selected Nonmanufacturing Industries, California, 1984, California Employment Development Department, Employment Data and Research Division.

Occupational Employment in Selected Nonmanufacturing Industries (Transportation, Communication, Electric, Gas and Sanitary Services, Wholesale and Retail Trade, Education and Government), Summarized by 3-Digit SIC, California, 1985, California Employment Development Department, Employment Data and Research Division.

George T. Silvestri and John M. Lukasiewicz, "A look at occupational trends to the year 2000," Monthly Labor Review, September, 1987.

"Spotlight on SERVICE: Where the Jobs Are," Occupational Outlook Quarterly, Summer, 1985.

APPENDIX F

ALLOCATION OF EMPLOYMENT AND HOUSING GROWTH TO SUPERDISTRICTS, AND CPAS

Jobs and housing units were distributed among superdistricts, community plan areas (CPAs), and traffic analysis zones (TAZs) to identify the locational impacts of the various growth alternatives. The allocation step draws on the results of several different econometric models, as well as the various dwelling unit caps.

I. Method of Approach

Several methods were used to distribute county-wide job and housing unit growth within the of City of San Diego, neighboring municipalities, and unincorporated areas of San Diego County (Figure F-1). In the case of employment growth, countywide employment projections (by sector) were disaggregated to CPAs, and then re-aggregated upward to superdistricts.

For the baseline (uncapped) forecasts, housing unit growth was disaggregated from the county-level to CPAs. For the capped or constrained forecasts, housing unit growth was first distributed to the 10 county superdistricts in accord with the various alternative allocations (Table 5-5), and then disaggregated down to the CPA level. Single-family units and multi-family units were allocated separately.

Econometric models based on past trends were used to allocate job growth from the county to CPAs, to allocate housing growth from the county to the CPAs (in the baseline cases), and to allocate housing growth from the superdistricts to the CPAs (in the constrained cases). Allocations from CPAs to TAZs--required for the later traffic analysis--were undertaken on the basis of current (1986) employment and housing shares.

Figure F-1: General Framework for Allocating Job and Housing Unit Growth

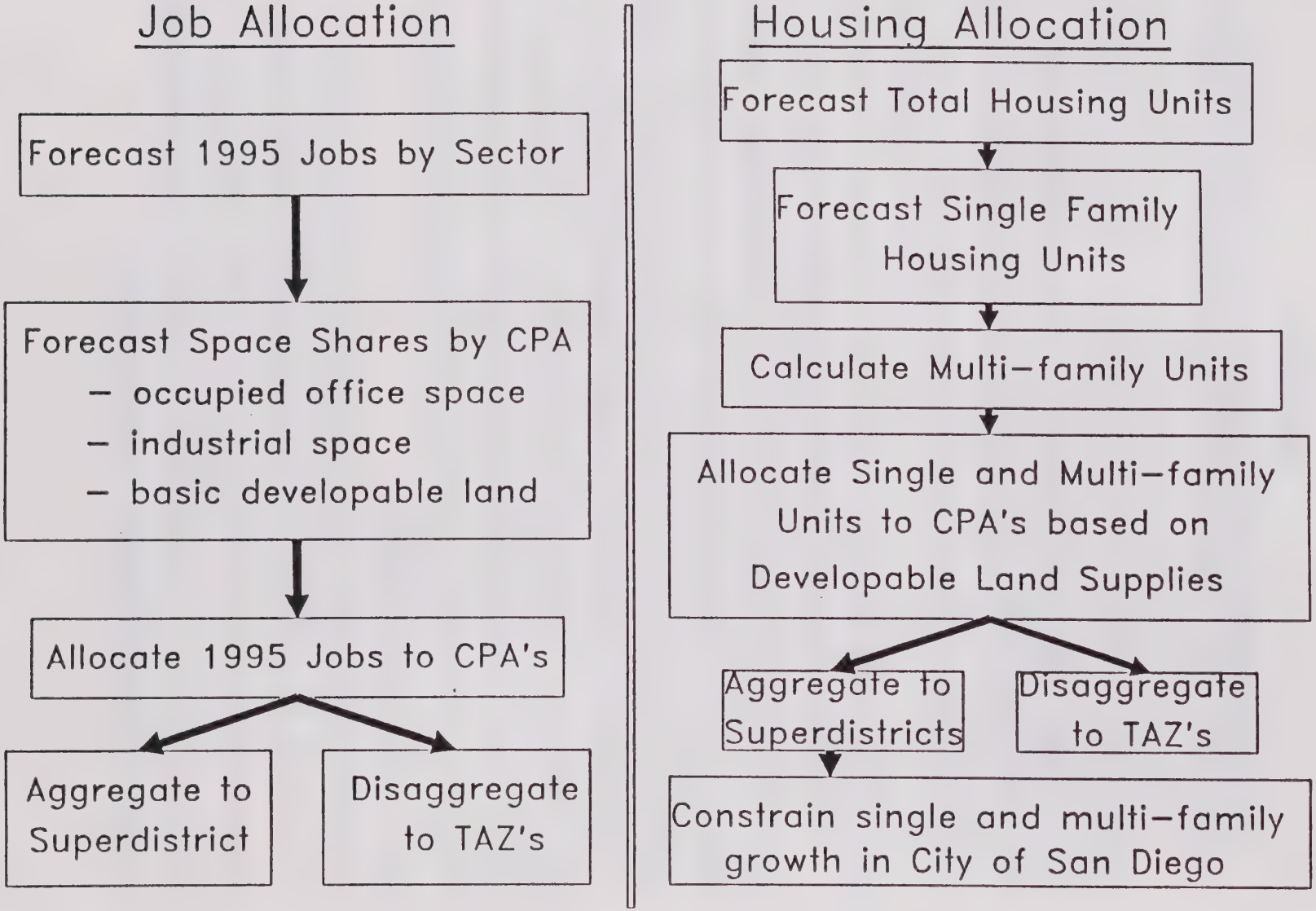

TABLE F-1:
Employment Classifications For Traffic Analysis

SANDAG Classification	CREUE Classification
Basic and Distribution	Extractive Other Manufacturing & High Technology Manufacturing Transportation, Communications & Utilities Construction Basic Serving (except SIC 73) Local Serving (SIC Codes 62, 63, 64, 65, 66)
Hotel	Tourism (except SIC Codes 58, 79, 84)
Retail Trade	Local Serving (SIC Codes 52, 53, 54, 55, 56, 57, 59) Tourism (SIC Code 58)
Retail Service	Local Serving (SIC Codes 41, 72, 74, 75, 76, 77, 78, 80, 81, 82, 83, 85, 88) Tourism (SIC Codes 79, 84) Basic Serving (SIC Code 73)
Government	Government

Source: CREUE

Prior to being disaggregated to the TAZ level, the various employment groups were reclassified to be consistent with SANDAG's traffic analysis models (Table F-1).

II. Data Sources

The data used in the analysis came from several sources. Baseline information for 1986 on the location (by CPA) of employment by sector, and of dwelling units by single-family and multi-family came from SANDAG Series-7 forecasts, provided on microcomputer disk by Source Point. Projections of the mix of household type (low, medium and high income) and of military employment also came from SANDAG Series-7 forecasts.

Projections for employment and total dwelling units added came from the time series projections described in Appendix D.

Base estimates of industrial square footage, by CPA for 1980 and 1986 were made drawing from data compiled and published by the San Diego Economic Development Corporation (Table F-2). Base estimates of occupied office square footage, by CPA for 1983 and 1986 and earlier were computed by CREUE from reports published by the Greater San Diego Chamber of Commerce (Table F-3).

Future supplies of office and industrial space are assumed to grow in proportion with existing shares of space. Possible limitations to the analysis resulting from this assumption are discussed in a later section of this Appendix.

III. Development of the Employment Allocation Models

Projected county employment was first allocated to CPAs, using a series of cross-sectional econometric share models. The CPA allocations were then aggregated to produce superdistrict level forecasts. One econometric model was calibrated for each aggregate employment sector (High Technology, Other Manufacturing, Natural Resources, Tourism, Construction, T/C/U, Business-Serving, Local Serving, and Civilian Government), as defined in Appendix D, Part III.

TABLE F-2
Occupied Industrial Square Footage by Community Plan Area: 1983, 1986

Community Pty Plan Area No.	Name	Occupied Industrial Space in thousands of SQFT 1983	1986	Occupied Industrial Space in thousands of SQFT 1983	1986
100	Carlsbad	588	1,896	3.0%	6.7%
200	Chula Vista	840	1,687	4.3%	6.0%
300	Coronado	0	0	0.0%	0.0%
400	Del Mar	0	0	0.0%	0.0%
500	El Cajon	1487	1,874	7.5%	6.7%
600	Encinatas	0	0	0.0%	0.0%
700	Escondido	543	696	2.8%	2.5%
800	Imperial Beach	5	25	0.0%	0.1%
900	La Mesa	0	16	0.0%	0.1%
1000	Lemon Grove	0	0	0.0%	0.0%
1100	National City	840	997	4.3%	3.5%
1200	Oceanside	582	827	3.0%	2.9%
1300	Poway	25	39	0.1%	0.1%
1401	Balboa Park	0	0	0.0%	0.0%
1402	Barrio Logan	11	113	0.1%	0.4%
1403	Carmel Mountain	0	51	0.0%	0.2%
1404	Centre City	286	342	1.5%	1.2%
1405	Sabre Springs	0	0	0.0%	0.0%
1406	Clairemont Mesa	267	385	1.4%	1.4%
1407	East Elliot	0	0	0.0%	0.0%
1408	Golden Hill	20	20	0.1%	0.1%
1409	Miramar Ranch N	0	0	0.0%	0.0%
1410	La Jolla	0	0	0.0%	0.0%
1411	La Jolla Shores	0	0	0.0%	0.0%
1412	Linda Vista	46	188	0.2%	0.7%
1413	Mid-City	0	0	0.0%	0.0%
1414	Midway	80	257	0.4%	0.9%
1415	Mira Mesa	4107	6,490	20.8%	23.0%
1416	Pacific Highway	121	124	0.6%	0.4%
1417	Mission Bay	0	0	0.0%	0.0%
1418	Mission Beach	0	0	0.0%	0.0%
1419	Mission Valley	0	0	0.0%	0.0%
1420	Navajo	528	522	2.7%	1.9%
1421	North City W	0	0	0.0%	0.0%
1423	Ocean Beach	0	0	0.0%	0.0%
1424	Old San Diego	0	0	0.0%	0.0%
1425	Otay Mesa-Nestor	40	107	0.2%	0.4%
1426	Otay Mesa	0	0	0.0%	0.0%
1427	Pacific Beach	0	0	0.0%	0.0%
1428	North Park	0	0	0.0%	0.0%
1429	Penasquitos East	0	0	0.0%	0.0%
1430	Peninsula	0	0	0.0%	0.0%
1431	Rancho Bernardo	591	519	3.0%	1.8%
1432	San Pasqual	0	0	0.0%	0.0%
1433	San Ysidro	102	286	0.5%	1.0%
1434	Scripps Miramar Ranch	267	696	1.4%	2.5%
1435	Serra Mesa	3719	4,671	18.9%	16.6%

TABLE F-2 (Continued)
Occupied Industrial Square Footage by Community Plan Area: 1983, 1986

1437	Southeast San Diego	101	200	0.5%	0.7%
1438	State University	0	0	0.0%	0.0%
1439	Tia Juana River Valley	0	71	0.0%	0.3%
1440	Torrey Pines	2294	1,276	11.6%	4.5%
1441	University	100	258	0.5%	0.9%
1442	Uptown	0	0	0.0%	0.0%
1444	Skyline-Paradise Hills	0	0	0.0%	0.0%
1447	Tierrasanta	0	0	0.0%	0.0%
1448	Sorrento Hills	0	0	0.0%	0.0%
1449	Fairbanks Country Club	0	0	0.0%	0.0%
1455	Via de la Valle	0	0	0.0%	0.0%
1456	Mission Trials	0	0	0.0%	0.0%
1457	Tecolote Canyon	0	0	0.0%	0.0%
1480	North City	0	0	0.0%	0.0%
1481	Beeler Canyon	0	0	0.0%	0.0%
1482	Miramar	0	0	0.0%	0.0%
1483	Lindbergh Field	0	0	0.0%	0.0%
1484	Point Loma Military	0	0	0.0%	0.0%
1499	University South	0	64	0.0%	0.2%
1500	San Marcos	1267	2,512	6.4%	8.9%
1600	Santee	523	653	2.7%	2.3%
1700	Solana Beach	0	0	0.0%	0.0%
1800	Vista	222	238	1.1%	0.8%
1901	Alpine	0	0	0.0%	0.0%
1902	Central Mountain	0	0	0.0%	0.0%
1903	Crest-Dehesa	0	0	0.0%	0.0%
1906	Jamul-Dulzura	0	0	0.0%	0.0%
1907	Barona-Lakeside+	27	18	0.1%	0.1%
1909	North County Metro	0	0	0.0%	0.0%
1911	Otay	0	0	0.0%	0.0%
1912	Pala-Pauma	0	0	0.0%	0.0%
1914	Ramona	0	0	0.0%	0.0%
1915	San Dieguito	0	0	0.0%	0.0%
1918	Sweetwater	0	0	0.0%	0.0%
1919	Valle de Oro	45	0	0.2%	0.0%
1920	Valley Center	0	0	0.0%	0.0%
1951	North Mountain	0	0	0.0%	0.0%
1952	Bonsall	0	0	0.0%	0.0%
1953	Fallbrook	49	43	0.2%	0.2%
1954	Pendelton-DeLuz	0	0	0.0%	0.0%
1955	Rainbow	0	0	0.0%	0.0%
1997	Scripps(Uninc.)	0	0	0.0%	0.0%
1998	Barona	0	0	0.0%	0.0%
1999	North Island	0	0	0.0%	0.0%
TOTAL		19,723	28,161	100.0%	100.0%

Source: CREUE from the Greater San Diego Economic Development Corporation

TABLE F-3
Occupied Office Square Footage by Community Plan Area: 1983, 1986

Community Pty Plan Area No.	Name	Occupied Office Space in thousands of SQFT 1983	1986	CPA share of Office Space in thousands of SQFT 1983	1986
100	Carlsbad	167	345	1.2%	1.8%
200	Chula Vista	191	182	1.4%	1.0%
300	Coronado	0	0	0.0%	0.0%
400	Del Mar	46	89	0.3%	0.5%
500	El Cajon	53	127	0.4%	0.7%
600	Encinatas	163	274	1.2%	1.4%
700	Escondido	345	474	2.5%	2.5%
800	Imperial Beach	0	0	0.0%	0.0%
900	La Mesa	148	197	1.1%	1.0%
1000	Lemon Grove	6	0	0.0%	0.0%
1100	National City	62	22	0.4%	0.1%
1200	Oceanside	167	271	1.2%	1.4%
1300	Poway	47	35	0.3%	0.2%
1401	Balboa Park	0	0	0.0%	0.0%
1402	Barrio Logan	0	0	0.0%	0.0%
1403	Carmel Mountain	0	0	0.0%	0.0%
1404	Centre City	4,390	5,487	31.6%	28.7%
1405	Sabre Springs	0	0	0.0%	0.0%
1406	Clairemont Mesa	216	213	1.6%	1.1%
1407	East Elliot	0	0	0.0%	0.0%
1408	Golden Hill	0	0	0.0%	0.0%
1409	Miramar Ranch N	0	0	0.0%	0.0%
1410	La Jolla	393	681	2.8%	3.6%
1411	La Jolla Shores	31	42	0.2%	0.2%
1412	Linda Vista	129	148	0.9%	0.8%
1413	Mid-City	0	0	0.0%	0.0%
1414	Midway	241	458	1.7%	2.4%
1415	Mira Mesa	429	842	3.1%	4.4%
1416	Pacific Highway	9	13	0.1%	0.1%
1417	Mission Bay	0	0	0.0%	0.0%
1418	Mission Beach	0	0	0.0%	0.0%
1419	Mission Valley	2,348	2,778	16.9%	14.5%
1420	Navajo	269	228	1.9%	1.2%
1421	North City W	0	153	0.0%	0.8%
1423	Ocean Beach	0	0	0.0%	0.0%
1424	Old San Diego	139	178	1.0%	0.9%
1425	Otay Mesa-Nestor	0	0	0.0%	0.0%
1426	Otay Mesa	0	0	0.0%	0.0%
1427	Pacific Beach	70	107	0.5%	0.6%
1428	North Park	0	0	0.0%	0.0%
1429	Penasquitos East	0	0	0.0%	0.0%
1430	Peninsula	9	52	0.1%	0.3%
1431	Rancho Bernardo	174	368	1.3%	1.9%
1432	San Pasqual	0	0	0.0%	0.0%
1433	San Ysidro	0	0	0.0%	0.0%
1434	Scripps Miramar Ranc	335	339	2.4%	1.8%
1435	Serra Mesa	1,555	1,981	11.2%	10.4%

TABLE F-3 (Continued)
Occupied Office Square Footage by Community Plan Area: 1983, 1986

1436	South Bay Terraces	0	0	0.0%	0.0%
1437	Southeast San Diego	0	0	0.0%	0.0%
1438	State University	0	0	0.0%	0.0%
1439	Tia Juana River Vall	0	0	0.0%	0.0%
1440	Torrey Pines	177	339	1.3%	1.8%
1441	University	779	1,409	5.6%	7.4%
1442	Uptown	258	424	1.9%	2.2%
1444	Skyline-Paradise Hil	0	0	0.0%	0.0%
1447	Tierrasanta	0	0	0.0%	0.0%
1448	Sorrento Hills	0	0	0.0%	0.0%
1449	Fairbanks Country Cl	0	0	0.0%	0.0%
1455	Via de la Valle	0	0	0.0%	0.0%
1456	Mission Trials	0	0	0.0%	0.0%
1457	Tecolote Canyon	0	0	0.0%	0.0%
1480	North City	11	18	0.1%	0.1%
1481	Beeler Canyon	0	0	0.0%	0.0%
1482	Miramar	0	0	0.0%	0.0%
1483	Lindbergh Field	0	15	0.0%	0.1%
1484	Point Loma Military	0	0	0.0%	0.0%
1499	University South	30	169	0.2%	0.9%
1500	San Marcos	109	170	0.8%	0.9%
1600	Santee	0	0	0.0%	0.0%
1700	Solana Beach	158	269	1.1%	1.4%
1800	Vista	161	170	1.2%	0.9%
1901	Alpine	0	0	0.0%	0.0%
1902	Central Mountain	0	0	0.0%	0.0%
1903	Crest-Dehesa	0	0	0.0%	0.0%
1906	Jamul-Dulzura	0	0	0.0%	0.0%
1907	Barona-Lakeside#	0	0	0.0%	0.0%
1909	North County Metro	0	0	0.0%	0.0%
1911	Otay	0	0	0.0%	0.0%
1912	Pala-Pauma	0	0	0.0%	0.0%
1914	Ramona	0	0	0.0%	0.0%
1915	San Dieguito	55	15	0.4%	0.1%
1918	Sweetwater	0	0	0.0%	0.0%
1919	Valle de Oro	8	23	0.1%	0.1%
1920	Valley Center	4	0	0.0%	0.0%
1951	North Mountain	0	0	0.0%	0.0%
1952	Bonsall	0	0	0.0%	0.0%
1953	Fallbrook	0	0	0.0%	0.0%
1954	Pendelton-DeLuz	0	0	0.0%	0.0%
1955	Rainbow	0	0	0.0%	0.0%
1997	Scripps(Uninc.)	0	0	0.0%	0.0%
1998	Barona	0	0	0.0%	0.0%
1999	North Island	0	0	0.0%	0.0%
TOTAL		13,882	19,105	100.0%	100.0%

Source: CREUE from the Greater San Diego Chamber of Commerce

The econometric models used to allocated sectoral employment to CPAs are job share models, and are shown in Table F-4. The general form of the models is the same in all cases, with a specific CPA's share of employment in the forward year (1986, in the calibration case) expressed as a function of that same CPA's employment in the base year (1980), and particular measures of the supply of land or space. The land supply and space parameters were estimated separately for each superdistrict. CPAs with no employment in the particular category were excluded from the calculation of some of the parameters.

In the course of developing the various job share models many different explanatory variables were tried, including such factors as the existing jobs/housing balance (the ratio of jobs to housing) and the absolute level of housing units in the area. Except in the case of construction employment, developable land supplies (either "basic" or "local-serving") were found not to be a reliable predictor of job share. The only factors found to be significant are those included in Table F-4, and explained below.

High Technology: High technology employment showed strong agglomerative tendencies within the region. High technology job share was most heavily influenced by the job share of the CPA in the previous period and by the supply of occupied office space in CPAs located in superdistricts 1, 2 and 3 (the I-5 Corridor, the I-15 Corridor, and the Northeast Central superdistrict, respectively).

Other Manufacturing: Nonhigh-tech manufacturing jobs tended to locate where they had in the past, but were also drawn by the availability of industrial space. Thus, 91 percent of the CPAs 1986 share of other manufacturing employment could be predicted by that CPA's share of other manufacturing employment in 1980, and by the CPA's share of industrial square footage in 1986. The industrial space variable was a significant determinant of other manufacturing employment only in superdistricts 2, 5, 8 and 9 (the I-15 Corridor, the Southwest Central area, North County and East County, respectively).

Natural Resources: A particular CPA's 1986 share of natural resource employment was predicted by its share of natural resource employment in 1980 and depending on the superdistrict, by that CPA's share of industrial square footage in 1986. The industrial space variable is a significant determinant of natural resources employment only in superdistricts 4, 5, 6 and 8. These variables explained 84 percent of the CPA's 1986 job share.

Tourism: Tourism employment was predicted by the CPA's previous share of tourism employment and by the CPAs share of occupied office square footage in 1986. The office space variable is a significant determinant of tourism employment share only for those CPAs located in superdistricts 2, 6, 8, and 10. These variables explained 97 percent of the CPA's 1986 tourism job share.

TABLE F-4
CPA Employment Allocation Model Specifications and Results

1986 Share of San Diego County Employment by Sector and CPA	Previous Share of Jobs/Units	Share of Related Sector	Building or Land Supply by Superdistrict								
			SD 1	SD 2	SD 3	SD 4	SD 5	SD 6	SD 8	SD 9	SD 10
HIGH TECHNOLOGY	High Tech Share 1980		Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.						
Adjusted R2: .9729											
Coefficient:	0.8350		0.2640	0.5305	0.5041						
(t statistic):	(29.6025)		(2.3075)	(5.2281)	(5.6869)						
OTHER MANUFACTURING	Other Mfg Share 1980			Indus. Sq.Ft.			Indus. Sq.Ft.		Indus. Sq.Ft.	Indus. Sq.Ft.	
Adjusted R2: .9103											
Coefficient:	0.7619			0.2939			-1.2912		0.1756	0.8369	
(t statistic):	(18.1592)			(8.0360)			(-8.4771)		(3.8782)	(6.6994)	
NATURAL RESOURCES	Nat. Res. Share 1980					Indus. Sq.Ft.	Indus. Sq.Ft.	Indus. Sq.Ft.	Indus. Sq.Ft.		
Adjusted R2: .8443											
Coefficient:	0.6722					-1.0537	0.6136	1.2764	0.2129		
(t statistic):	(17.9220)					(-1.9986)	(5.3135)	(2.0485)	(4.5736)		
TOURISM	Tourism Share 1980			Occ'd Office Sq.Ft.				Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.		Occ'd Office Sq.Ft.
Adjusted R2: .9652											
Coefficient:	0.9223			0.1266				0.0591	0.3117		0.6423
(t statistic):	(39.0552)			(2.0753)				(2.4331)	(2.2329)		(1.8444)
CONSTRUCTION	Constr. Share 1980								Avail. Basic Land	Avail. Basic Land	
Adjusted R2: .8935											
Coefficient:	1.0501								-0.3056	0.8369	
(t statistic):	(26.0774)								(-1.9847)	(6.6994)	
TRANSPORT., COMM., & UTILITIES	TCU Share 1980			Indus. Sq.Ft.			Indus. Sq.Ft.		Indus. Sq.Ft.		
Adjusted R2: 0.9107											
Coefficient:	0.6783			0.4909			-0.4816		0.2174		
(t statistic):	(20.3650			(12.7172)			(-2.8491)		(4.6868)		
BUSINESS SERVING	Bus.Srvg. Share 1980		Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.	Occ'd Office Sq.Ft.			Occ'd Office Sq.Ft.			
Adjusted R2: 0.9727											
Coefficient:	0.8050		0.3214	0.4459	0.1413			0.1546			
(t statistic):	(39.1350)		(4.2157)	(6.3086)	(2.8497			(5.8331)			

TABLE F-4 (Continued)
CPA Employment Allocation Model Specifications and Results

1986 Share of San Diego County Employment by Sector and CPA		Previous Share of Jobs/Units	Share of Related Sector	Building or Land Supply by Superdistrict SD 1	SD 2	SD 3	SD 4	SD 5	SD 6	SD 8	SD 9	SD 10
RETAIL TRADE AND SERVICE		Retail Share 1980	Bus.Srvg. Share 1986									
Adjusted R2:	0.9607											
Coefficient:		0.8514	0.0873									
(t statistic):		(23.4969)	(2.7033)									
GOVERNMENT		State & Loc Govt Share 1980	Bus.Srvg. Share 1986	Bus.Srvg. Share 1986						Bus.Srvg. Share 1986		Bus.Srvg. Share 198
Adjusted R2:	0.8755											
Coefficient:		0.6785	0.2191	-0.8987						0.2928		0.5015
(t statistic):		(12.8174)	(4.8763)	(-5.1072)						(2.2061)		(2.6198)

Note: Does not include self-employed persons, employed in the armed forces, or in agricultural production.

Source: Center for Real Estate and Urban Economics.

Construction: 89 percent of a CPA's 1986 share of construction employment was predicted by that CPAs' share of construction employment in 1980, and the CPA's share of land available for "basic" development in 1986. (Estimates of available supplies of basic land by CPA were provided by SANDAG.). The land availability variable was a significant determinant of Construction employment share only for those CPAs located in superdistricts 8 and 9.

Transportation/Communications/Public Utilities: 91 percent of a CPA's 1986 share of employment in transportation/communications/public utilities (TCU) was predicted by that CPAs' share of TCU employment in 1980, and the CPA's share of industrial square footage in 1986. The industrial space variable is a significant determinant of TCU employment only in superdistricts 2, 5, and 8.

Business-serving: 97 percent of a CPA's 1986 share of business-serving employment was predicted by that CPA's share of business-serving employment in 1980, and the CPA's share of occupied office space in 1986. The occupied office space variable was significant determinant of business-serving employment share only for those CPAs located in superdistricts 1,2, 3, and 6 (I-5 Corridor, I-15 Corridor, Northeast Central, and Northwest Central).

Local-serving: 96 percent of a CPA's 1986 share of retail trade and service employment was predicted by that CPA's share of Retail Trade and Service employment in 1980, and the CPA's share of business-serving employment in the forward year (1986).

Civilian Government: 88 percent of a CPA's 1986 share of civilian government employment was predicted by that CPA's share of government employment in 1980, and by the CPA's share of business-serving employment in the forward year (1986).

Superdistrict job allocations for the various employment growth and cap alternatives are shown in Table 5-2.

IV. Development of the Housing Allocation Models

The procedures used to distribute housing units to superdistricts and CPAs varied depending on the type of housing unit, and whether the forecast was constrained (capped) or unconstrained. For the unconstrained baseline forecasts (no caps), housing units were distributed directly to CPAs using separate regression models for single- and multi-family units. For the capped forecasts (Alternatives 1, 2A, 2B, 3A, and 3B), housing units were first distributed from the county to the superdistrict level, according to the distributions inherent in the alternatives (Table 5-5), and then further distributed from the each superdistrict to its component CPAs.

Baseline Forecasts

In the case of the baseline forecasts, single and multi-family housing unit total were distributed from the county directly to CPAs. Separate regression models were developed to distribute single-family units and multi-family units. As with the employment forecasts, above, the regression models predict the share of single and multi-family housing unit growth to be allocated to each CPA in the forecast year. Table F-5 summarizes the regression models.

Multi-family Unit Growth: Multi-family units developed between 1980 and 1985 tended overwhelmingly to be located near existing multi-family projects, as well as in those areas with a large supplies of land available or local-serving development. Put another way, multi-family tenants and developers are attracted to existing multi-family districts and neighborhoods which are easily accessible to residential services. As Table F-5 shows, when the regression line was force-fit through the origin, 79 percent of a CPA's share of multi-family unit growth (between 1980 and 1985) could be explained by that CPA's share of multi-family units in the baseline year (1980), and by the CPA's share of developable land available for local-serving activities (Table F-8). Note, however, that the importance of developable land in explaining multi-family growth share was limited to those CPAs located in superdistricts 1, 2, 3, and 4.

As with the employment models profiled above, numerous other variables were tested before determining that the supply of local-serving developable land use was the only significant variable (other than share in the base year) which explained the distribution of multi-family units within CPAs.

Single-family Unit Growth: New single-family projects are much less sensitive than multi-family projects to the locations of existing developments, but much more sensitive to land availability. Single-family units developed between 1980 and 1985 were disproportionately attracted to those CPAs with large supplies of developable land reserved for single-family development. Overall, 82 percent of a CPA's share of single-family unit growth (between 1980 and 1985) could be explained by the CPA's share of single-family units in the base year (1980), by the remaining share of CPA developable land reserved for single-family development, and by the CPA share of residential developable land within its superdistrict. Two different measures of land availability (residential share of CPA developable land, and CPA share of superdistrict residentially developable land) to improve the fit and forecasting ability of the model.

Constrained Forecasts

In the case of the constrained, or capped forecasts, single- and multi-family unit allocations within the City of San Diego were determined using the control totals specified by the alternatives. As a first step, city-county dwelling unit splits were developed based on the alternatives (Table F-6). Units within the City of San Diego were then distributed to

TABLE F-5:
CPA Single and Multi-family Housing Unit Allocation Model Specifications and Results

DEPENDENT VARIABLES	INDEPENDENT VARIABLES							
Share of 1980-85 County Dwelling Unit Growth by Community Plan Area	1980 Share of Dwelling Units by CPA	CPA Developable Land Supply by Superdistrict (Interaction)						
		SD 1	SD 2	SD 3	SD 4	SD 5	SD 6	SD 9
MULTI-FAMILY DWELLING UNITS	Multi-family Unit Share: 1980	CPA Share of Superdistrict Local-serving Developable Land in 1980						
Adjusted R2: .79								
Constant: 0 (force-fit)								
Coefficient:	0.6185	0.4511	0.7729	1.103	1.305			
t-statistic	10.73	2.4200	4.62	4.58	4.39			
SINGLE-FAMILY DWELLING UNITS	Single-family Unit Share: 1980	1-family Developable Land/ Total Developable Land by CPA	CPA Share of Superdistrict 1-family Developable Land in 1980					
Adjusted R2: .82								
Constant: 0 (force-fit)								
Coefficient:	0.321	0.059	21.28	-36.35	20.77	-40.38	-29.44	3.82
t-statistic	3.95	10.77	4	-4.67	2.24	-4.41	-5.46	2.22

Source: Center for Real Estate and Urban Economics

TABLE F-6:
Distribution of Projected 1985-1995 Dwelling Unit Growth to City of San Diego
San Diego County, and Other Municipalities, by Alternative: 1985-95

Employment Growth Rate:		High	High	Moderate
San Diego City Dwelling Unit Cap		8000	4500	4500
Forecast 1985-1995 Dwelling Unit Growth Allocated to:				
City of San Diego	Number	90,732	73,359	72,777
	Percent	46.1%	40.5%	48.5%
San Diego County and Other Cities	Number	106,149	107,777	77,170
	Percent	53.9%	59.5%	51.5%
Projected 1995 Dwelling Units in:				
City of San Diego	Number	491,283	492,911	462,304
	Percent	49.9%	50.9%	49.3%
San Diego County and Other Cities	Number	492,792	475,419	474,837
	Percent	50.1%	49.1%	50.7%

Source: Center for Real Estate and Urban Economics

superdistricts; the precise increment distributed to each superdistrict varied by alternative (Table F-7). Units outside the City of San Diego were distributed directly to county CPAs based on the regression models profiled in Table F-5.

Two methods were used to distribute housing units from superdistricts to CPAs within the City of San Diego. In the case of multi-family units, the regression model explained above, and presented in Table F-5 was used. In the case of single-family units within the City of San Diego, distributions from superdistrict to CPA were made on the basis of remaining community plan capacity. This method of allocating single-family housing units is entirely consistent with existing city policies and plans. (We note that we were unable to estimate a satisfactory regression model with which to distribute single-family units from the superdistrict to CPA level.) Estimates of remaining plan capacity were provided by the San Diego City Planning Department, and are shown in Table F-9. Those CPAs which are officially "built-out" were not allocated additional single-family units.

V. Forecasting Assumptions

When using regression models for forecasting, it is first necessary to forecast the independent or explanatory variables.

Employment Models

Employment and office and industrial space shares for 1986 were used as the baseline from which to forecast the share of employment going to each CPA in 1995. Put simply, this method assumes that while building activity may vary, a particular CPA's share of total, county-wide occupied office space, industrial space, or "basic" developable land will not change between 1986 and 1995. New office and industrial development will occur proportionately to what is already available. The key drawback of this assumption is that it rules out the development of large, new office or industrial centers.

TABLE F-7:
Dwelling Unit Allocations by Superdistrict for Alternative Employment Growth Levels and Housing Caps

	Forecast Dwelling Unit Growth by Superdistrict: 1985-1995			Projected 1995 Dwelling Units by Superdistrict		
Employment Growth:	High	High	Moderate	High	High	Moderate
San Diego DU Cap:	8000	4500	4500	8000	4500	4500
Superdistrict						
SD1: I-5 Corridor	10,202	7,887	7,647	22,920	20,605	20,365
SD2: I-15 Corridor	22,445	17,563	17,481	57,674	52,792	52,710
SD3: N.E. Central	6,842	5,810	5,810	43,256	42,224	42,224
SD4: S.E. Central	15,444	13,812	13,812	117,628	115,996	115,996
SD5: S.W. Central	14,666	11,620	11,620	114,121	111,075	111,075
SD6: N.W. Central	13,110	10,490	10,490	111,377	108,757	108,757
SD7: South Bay	8,023	6,177	5,917	25,816	23,970	23,710
SD8: South County	54,429	55,416	39,468	217,317	218,304	202,356
SD9: East County	22,570	22,699	16,263	107,679	107,808	101,372
SD10: North County	29,150	29,662	21,439	166,287	166,799	158,576
Total	196,881	181,136	149,947	984,075	968,330	937,141

	Forecast Dwelling Unit Growth % by Superdistrict: 1985-1995			Projected 1995 Dwelling Units % by Superdistrict		
Employment Growth:	High	High	Moderate	High	High	Moderate
San Diego DU Cap:	8000	4500	4500	8000	4500	4500
Superdistrict						
SD1: I-5 Corridor	5.2%	4.4%	5.1%	2.3%	2.1%	2.2%
SD2: I-15 Corridor	11.4%	9.7%	11.7%	5.9%	5.5%	5.6%
SD3: N.E. Central	3.5%	3.2%	3.9%	4.4%	4.4%	4.5%
SD4: S.E. Central	7.8%	7.6%	9.2%	12.0%	12.0%	12.4%
SD5: S.W. Central	7.4%	6.4%	7.7%	11.6%	11.5%	11.9%
SD6: N.W. Central	6.7%	5.8%	7.0%	11.3%	11.2%	11.6%
SD7: South Bay	4.1%	3.4%	3.9%	2.6%	2.5%	2.5%
SD8: South County	27.6%	30.6%	26.3%	22.1%	22.5%	21.6%
SD9: East County	11.5%	12.5%	10.8%	10.9%	11.1%	10.8%
SD10: North County	14.8%	16.4%	14.3%	16.9%	17.2%	16.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: CREUE

TABLE F-8:
Community Plan Area Share of Local Serving and Single Family Residential Developable Land

Community Plan Area		Share of Local Serving Developable Land		Share of Single-Family Developable Land	
No.	Name	1980	1986	1980	1986
100	Carlsbad	1.29%	0.88%	2.15%	1.82%
200	Chula Vista	0.57%	0.38%	1.11%	1.21%
300	Coronado	3.80%	0.00%	0.00%	0.01%
400	Del Mar	0.00%	0.00%	0.00%	0.00%
500	El Cajon	0.25%	0.23%	0.10%	0.10%
700	Escondido	0.67%	0.23%	3.53%	3.32%
800	Imperial Beach	0.00%	0.00%	0.00%	0.00%
900	La Mesa	0.01%	0.00%	0.01%	0.01%
1000	Lemon Grove	0.00%	0.42%	0.00%	0.01%
1100	National City	0.28%	0.19%	0.05%	0.04%
1200	Oceanside	1.94%	1.45%	2.40%	2.10%
1300	Poway	24.65%	17.99%	0.03%	0.01%
1401	Balboa Park	0.00%	0.00%	0.00%	0.00%
1402	Barrio Logan	0.00%	0.00%	0.00%	0.11%
1403	Carmel Mountain	0.00%	0.00%	0.06%	0.03%
1404	Centre City	0.00%	0.00%	0.04%	0.02%
1405	Sabre Springs	0.00%	0.00%	0.03%	0.01%
1406	Clairmont Mesa	3.23%	2.47%	0.01%	0.00%
1407	East Elliot	0.00%	0.00%	0.00%	0.00%
1408	Golden Hill	0.00%	0.00%	0.00%	0.00%
1409	Miramar Ranch N	0.00%	0.00%	0.00%	0.00%
1410	La Jolla	2.25%	0.00%	0.00%	0.00%
1411	La Jolla Shores	0.00%	0.00%	0.00%	0.00%
1412	Linda Vista	0.00%	0.73%	0.00%	0.01%
1413	Mid-City	3.11%	2.71%	0.04%	0.03%
1414	Midway	0.00%	0.00%	0.00%	0.00%
1415	Mira Mesa	4.86%	2.88%	0.12%	0.09%
1416	Pacific Highway	0.00%	0.00%	0.00%	0.00%
1417	Mission Bay	0.00%	0.00%	0.00%	0.00%
1418	Mission Beach	0.00%	0.00%	0.00%	0.00%
1419	Mission Valley	1.65%	0.00%	0.07%	0.02%
1420	Navajo	2.23%	1.54%	0.02%	0.01%
1421	North City W	0.00%	2.30%	0.06%	0.06%
1423	Ocean Beach	0.00%	0.00%	0.00%	0.00%
1424	Old San Diego	0.00%	0.00%	0.00%	0.03%
1425	Otay Mesa-Nestor	3.55%	2.54%	0.05%	0.03%
1426	Otay Mesa	0.00%	0.00%	1.20%	1.14%
1427	Pacific Beach	0.00%	0.00%	0.00%	0.00%
1428	North Park	0.00%	0.00%	0.12%	0.00%
1429	Penasquitos East	0.00%	0.00%	0.06%	0.05%
1430	Peninsula	0.00%	0.00%	0.00%	0.15%
1431	Rancho Bernardo	3.27%	2.30%	0.11%	0.06%
1432	San Pasqual	0.00%	0.00%	0.00%	0.00%
1433	San Ysidro	0.30%	0.21%	0.03%	0.01%
1434	Scripps Miramar Ra	0.00%	0.00%	0.10%	0.11%
1435	Serra Mesa	0.00%	1.84%	0.03%	0.00%

TABLE F-8: (Continued)
Community Plan Area Share of Local Serving and Single Family Residential Developable Land

1436	South Bay Terraces	0.00%	0.00%	0.11%	0.00%
1437	Southeast San Dieg	1.90%	1.35%	0.04%	0.04%
1438	State University	0.00%	0.00%	0.00%	0.00%
1439	Tia Juana River Va	5.91%	4.10%	0.02%	0.02%
1440	Torrey Pines	0.00%	0.00%	0.01%	0.00%
1441	University	5.27%	3.56%	0.00%	0.00%
1442	Uptown	0.00%	0.00%	0.00%	0.00%
1444	Skyline-Paradise H	0.00%	0.00%	0.00%	0.00%
1447	Tierrasanta	3.41%	0.00%	0.14%	0.03%
1448	Sorrento Hills	0.00%	0.00%	0.00%	0.00%
1449	Fairbanks Country	0.00%	0.00%	0.00%	0.00%
1455	Via de la Valle	0.00%	0.00%	0.00%	0.00%
1499	University South	0.00%	0.00%	0.22%	0.01%
1500	San Marcos	1.29%	0.90%	0.78%	0.73%
1600	Santee	0.57%	0.43%	0.45%	0.37%
1800	Vista	2.14%	1.54%	1.37%	1.22%
1901	Alpine	0.14%	0.06%	0.14%	0.13%
1902	Central Mountain	0.00%	0.00%	0.00%	0.00%
1903	Crest-Dehesa	0.00%	0.00%	0.00%	0.00%
1906	Jamul-Dulzura	0.00%	0.00%	17.14%	16.42%
1907	Barona-Lakeside*	0.81%	0.12%	0.44%	0.40%
1909	North County Metro	0.00%	11.16%	0.00%	0.04%
1911	Otay	0.00%	0.00%	0.00%	5.97%
1912	Pala-Pauma	0.00%	0.00%	14.20%	13.20%
1914	Ramona	0.32%	0.17%	0.01%	0.02%
1915	San Dieguito	19.64%	14.27%	0.67%	0.49%
1918	Sweetwater	0.00%	0.00%	0.00%	0.00%
1919	Valle de Oro	0.44%	0.29%	0.99%	0.82%
1920	Valley Center	0.00%	17.83%	0.03%	0.00%
1951	North Mountain	0.00%	0.00%	0.51%	49.47%
	Total	100.00%	97.06%	100.00%	100.00%

Source: Center for Real Estate and Urban Economics from SANDAG

TABLE F-9:
Remaining Plan Capacity by San Diego Community Plan Area: 1986

CPA	Name	Remaining Plan Capacity* (in acres)	Percent
1401	Balboa Park	0	0.00%
1402	Barrio Logan	387	0.24%
1403	Carmel Mountain	5,343	3.35%
1404	Centre City	6,591	4.14%
1405	Sabre Springs	4,831	3.03%
1406	Clairemont Mesa	0	0.00%
1407	East Elliot	19,040	11.95%
1408	Golden Hill	658	0.41%
1409	Miramar Ranch N	4,100	2.57%
1410	La Jolla	0	0.00%
1411	La Jolla Shores	27	0.02%
1412	Linda Vista	2,997	1.88%
1413	Mid-City	9,536	5.99%
1414	Midway	3,097	1.94%
1415	Mira Mesa	7,996	5.02%
1416	Pacific Highway	7	0.00%
1417	Mission Bay	0	0.00%
1418	Mission Beach	0	0.00%
1419	Mission Valley	10,286	6.46%
1420	Navajo	946	0.59%
1421	North City W	13,694	8.60%
1423	Ocean Beach	0	0.00%
1424	Old San Diego	1,190	0.75%
1425	Otay Mesa-Nestor	0	0.00%
1426	Otay Mesa	17,503	10.99%
1427	Pacific Beach	4,981	3.13%
1428	North Park	6,270	3.94%
1429	Penasquitos East	4,181	2.62%
1430	Peninsula	6,435	4.04%
1431	Rancho Bernardo	5,138	3.23%
1432	San Pasqual		0.00%
1433	San Ysidro	5	0.00%
1434	Scripps Miramar Ranch	800	0.50%
1435	Serra Mesa	104	0.07%

TABLE F-9: (Continued)
Remaining Plan Capacity by San Diego Community Plan Area: 1986

1436	South Bay Terraces	0	0.00%
1437	Southeast San Diego	7,174	4.50%
1438	State University	0	0.00%
1439	Tia Juana River Valley	839	0.53%
1440	Torrey Pines	115	0.07%
1441	University	2,520	1.58%
1442	Uptown	2,925	1.84%
1444	Skyline-Paradise Hills	328	0.21%
1447	Tierrasanta	3,416	2.14%
1448	Sorrento Hills	526	0.33%
1449	Fairbanks Country Club	274	0.17%
1455	Via de la Valle	0	0.00%
1499	University South	5,040	3.16%
TOTAL		159,300	100.00%

* Those remaining plan capacities that are given as negative values in SANDAG sources are converted into zero values.

Source: CREUE based on SANDAG data, 1988.

Housing Models

Similar assumptions were used to distribute housing units. Specifically, 1986 shares of the county's (or superdistrict, as appropriate) multi-family and single-family housing stock by CPA were used to forecast 1995 growth shares. And where developable and developed land supplies were found to be a significant determinant of housing growth share, 1986 shares of developable and developed land were used. As above, this assumes that while construction rates will differ between CPAs and superdistricts, relative land supplies will not change between 1986 and 1995.

Control Totals

The forecast CPA shares did not always sum to exactly 100 percent. In such cases, the excess or deficiency would be reallocated to all CPAs in direct proportion to their forecast shares.